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Closed-Circuit Television as a Medium of Instruction at New York University

1956-1957

Project Sponsored by

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NEW YORK UNIVERSITY

Closed-Circuit Television as a Medium of Instruction at New York University

1956-1957

A Report on New York University's Second Year of Experimentation with Television in College Classrooms

Prepared by Hope Lunin Klapper,
with a Preface by Thomas Clark Pollock
and an Introduction by Harvey W. Zorbaugh

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PREFACE

During 1955–1956, New York University, with the help of a grant from the Fund for the Advancement of Education, began experimentation with closed-circuit television as a medium of instruction. The experiment involved two undergraduate courses, College Composition and The Literature of England. A report of this experimentation was published in 1956.

During 1956–1957, the University continued and enlarged the experimentation, again with the help of a grant from the Fund for the Advancement of Education. Closed-circuit television was used in four different undergraduate courses: College Composition and French Reading, in the Washington Square College of Arts and Science; History of Civilization, in the School of Commerce, Accounts, and Finance; and Man's Cultural Heritage, in the School of Education.

The experiment was under the immediate overview of an Advisory and Evaluation Committee consisting of the following members of the New York University faculty: Assistant Dean Waldo B. Buckham, Professor Richard J. Goggin, Professor Noel D. Godfrey, Associate Dean Alonzo G. Grace, Assistant Professor Hope L. Klapper, Associate Professor Walter H. Wilke, Professor Harvey W. Zorbaugh, and Dean Thomas C. Pollock, chairman. Professor Louis M. Heil of Brooklyn College served as the evaluation expert for the experiment.

In addition, an Advisory Group consisting of faculty members from other universities and other people interested in educational television met three times during the year to watch the experiment and offer advice on its progress. The following people were members of this Advisory Group: President John Cranford Adams of Hofstra College; President Phillip Davidson of the University of Louisville; Dean William C. DeVane of Yale College; Provost Milton W. Gross of Rutgers University; Professor Brice Harris of the Pennsylvania State University; Mr. E. Arthur Hungerford, Jr., of the Metropolitan Educational Television Association, Inc.; President Albert N. Jorgensen of the University of Connecticut; Professor Clyde Kluckhohn of Harvard University; Professor Kathrine Koller of the University of Rochester; Mr. Harold C. Martin, Director of General Education A at Harvard University; Mr. George E. Probst, Executive Director of the Thomas Alva Edison Foundation, Inc.; Mr. Seymour N. Siegel, Director of the Municipal Broadcasting System in New York City; and Dean Joseph R. Smiley, of the College of Arts and Sciences of the University of Illinois.

The analytical report that follows was written by Assistant Professor Hope L. Klapper and draws upon interviews conducted by Professor Richard J. Goggin with New York University faculty members who participated in the television experimentation during 1956–1957. Statistics were collected by Professor Louis W. Heil and members of his staff.

As the report indicates in more detail, the experimentation was not designed to find out whether or not college students can learn by television. The evidence is already quite clear that they can. Rather, the experiment was designed to provide answers to a variety of questions that have been raised by experience with educational television, such as the following:

—Does the television teacher need personal contact with the students he is teaching?

—What is the relation of the apparent attitude of the student in a television class to his learning? Does the fact that he is lounging, for example, mean that he is not learning?

—Do students learn more from a television class that makes plentiful use of audio-visual "production aids" than from a "bare-bones" class, which presents via television simply the teacher and a blackboard?

—Does the teacher's attitude toward learning by television have any significant effect on his students' attitude toward learning by television?

—Do students need to *learn how to learn* by television?

—Does what students already know or do not know about a subject have any relation to how well they learn the subject by television?

The answers indicated by the experiment to these and many other questions will be found in Professor Klapper's report. Among those which the present writer found most interesting are the following:

—Contrary to what is often assumed, *the television lecturer who is an experienced teacher does not need personal contact with the students he is teaching.*

—Students apparently *like* a television course that is given the full audio-visual production better than a "bare-bones" course—but they *do not necessarily learn more from it.*

—*Experience with learning by television apparently helps students to learn better by television.* During the first term, students in the conventional College Composition classes learned slightly more than comparable students in the television classes; but during the second term, after a few months of experience with learning by television, the College Composition students in the television classes learned slightly more than the students in the conventional classes.

—*The teacher's attitude toward educational television, pro or con, has a marked effect on his students' attitude toward learning by television.*

One of the most interesting and perhaps in the end most useful answers was provided almost accidentally to a question we did not at first intend to ask: Which is most important to the student's learning: conventional classroom methods of instruction? instruction using television? or the quality of the teacher? The evaluation of the various sections of College Composition gives interesting evidence that the teacher was far more important to the student's learning than either the use of television or the use of only the conventional-class medium of instruction. In other words, whether the instruction a student receives is excellent or less good does not depend primarily on whether the course uses only conventional classroom methods or television; it depends primarily on the quality of the lecturer and the discussion-section teacher.

It is fair to summarize much that has already been learned about television as a medium of instruction, at New York University and elsewhere, as follows. Television is a very valuable medium of instruction whose potentialities we are just beginning to explore. It has some limitations and many extraordinary characteristics. The most important of these is probably its ability to extend the effective range of a good teacher.

It is, however, a neutral medium. Like the conventional classroom, it has no inherent magic to make a poor teacher good or a good teacher excellent. An excellent teacher can, however, help students learn better through the medium of television than the average teacher can in the conventional classroom.

During the year, closed-circuit television was also used as a regular medium of instruction in certain subjects, especially crown and bridge and oral surgery, in the College of Dentistry of New York University. This use of closed-circuit television, apparently quite successful, was not part of the experiment analyzed in the following report. Readers interested in the use of television in the College of Dentistry may address inquiries to Dean Raymond J. Nagle, College of Dentistry, New York University, 421 First Avenue, New York 10, N.Y.

THOMAS CLARK POLLOCK

INTRODUCTION

THE SETTING OF THE EXPERIMENT

New York University has had a deep interest in and considerable experience with television. For six years its Office of Radio and Television, co-operatively with New York television stations, has been interpreting to the citizens of the metropolitan area the nature and role of a university and the fruits of its scholarship. It has provided active leadership and support to the New York Metropolitan Educational Television Association. It has completed three years of on-campus closed-circuit instruction, involving one or more of its schools of arts and science, education, commerce, and dentistry, and is embarking on another next fall.

Closed-circuit television is established as a permanent part of the instructional apparatus of the University's College of Dentistry, and the new building that shortly will house the college will provide increased closed-circuit facilities. Recently, the College of Dentistry transmitted by microwave four clinical demonstrations followed by panel discussions to the convention of the Tenth District Dental Society meeting in Garden City, New York, an eminently successful experiment in postgraduate education.

The University's College of Medicine is equipping all its new buildings with conduits, is planning for the use of television in instruction, and is projecting a program of postgraduate medical education by television in co-operation with county medical societies. All new classroom and laboratory buildings proposed for the Washington Square Center are being planned with instructional television in mind.

During 1957–1958 New York University, in co-operation with WCBS–TV of the Columbia Broadcasting System, embarked on an experiment in broadcast instruction for credit, offering on the air, under the auspices of its University College of Arts and Science, Comparative Literature 10 and 20, better known as "Sunrise Semester." This experiment will, according to present plans, be expanded in 1958–1959 under the auspices of the Washington Square College of Arts and Science, again in co-operation with WCBS–TV of the Columbia Broadcasting System.

New York University is seeking to acquire greatly expanded air time, or a station, whichever proves more practical.

With the assistance of a grant from the Radio Corporation of America, the University is establishing a Workshop in Instructional Television with the objectives of developing and testing instructional techniques and materials, and of training instructional and directional personnel for elementary and secondary schools.

Throughout the years of experimentation the University's major objective has been, and continues to be, a thorough exploration of the potentialities of television for contributing to the realization of the educational goals of the University. The 1956–1957 experiments with the use of closed-circuit television in instruction, here reported, are to be considered in this context.

The assumption was made that to explore thoroughly even a few of the potentialities of closed-circuit television for instruction would require instructional and television personnel of genuine competence, ample time allowance for this personnel, adequate financing, and first-rate technical facilities. These requirements were met. The television instructors were successful teachers of long experience and effective television personalities. The television personnel, under the supervision of Professor Richard J. Goggin, chairman of the Department of Television, Motion Pictures, and Radio of the Communication Arts Group, were professionally trained and experienced.

Instructors were credited with three teaching hours for each hour of television presentation. A total of $34,311 was made available to cover the excess over normal instructional costs: part-time instructional replacement of the television instructors' released time, materials co-ordinators, proctors, production of visual materials, supervising producer, directors, studio crew, and the proportion of the engineer's salary, maintenance, and amortization chargeable to the experiment.

The pattern was substantially the same for all courses. A teaching team was established for each course, consisting of the instructor or instructors involved, a materials co-ordinator, and a director.[1] Professor Goggin, who had responsibility for the production of all the courses, worked continuously with all the teaching teams.

Each teaching team began working about six weeks before the first meeting of its course was scheduled, planning its content and television presentation. Professor Louis Heil, the evaluation expert, participated in these preliminary planning sessions. The planning sessions continued throughout the course, aiming to keep two to three weeks ahead. Each team had two "dry runs," complete rundowns of two presentations before the course began.

The presentation of the television instructor originated in the studio, typically without students present, though occasionally a few students were brought into the studio and involved in the instruction. The classes met in viewing rooms with "discussion leaders," instructors who watched the television instructor's presentation with them, and after its conclusion discussed it with them—answering questions, debating points, clarifying, and amplifying.

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[1] In two instances the instructor elected to act as his own materials co-ordinator, receiving additional released time.

The television presentation approximated one half the scheduled time of the class, though the proportion varied from time to time as seemed desirable to the teaching team. Three of the nine television instructors involved with the courses during the year also acted as "discussion leaders," their classes being handled by proctors during their television presentations; the other six did not act as "discussion leaders."

All the television instructors worked from outlines. Television presentations were not scripted. The teaching team, technicians, and floor crew met in the studio an hour before the class was to begin, and spent the ensuing hour in planning the mechanics of the presentation, trying and timing audio and visual materials, setting cues, and the like. Television instructors were "made up" before going on camera.

During the presentation there were in the control room the course director, an audio engineer and a video engineer (regularly employed by the American Broadcasting Company in the same capacities), and the University's television engineer, Mr. Michael Volpe. The studio floor crew consisted of two cameramen, a mike boom operator, and a floor manager. One of the cameramen was a professional; the other cameraman and the mike boom operator were senior students of the Department of Television, Motion Pictures, and Radio; the floor manager was a senior student of the Department of Dramatic Art.

The studio was equipped with two image-orthicon chains, a vidicon film chain and slide projector, and all the supporting paraphernalia to be found in a small but first-rate commercial studio.[2]

These, then, were the setting, conditions, and general pattern of the instructional experiment hereinafter described.

HARVEY W. ZORBAUGH

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[2] For complete specifications on the studio and its equipment, *see* Thomas Clark Pollock, *Closed-Circuit Television as a Medium of Instruction, 1955–1956* (New York: New York University, 1956), pp. 28–35.

CHAPTER I

COLLEGE COMPOSITION

WASHINGTON SQUARE COLLEGE OF ARTS AND SCIENCE

Choice of Course

College Composition is a basic course in nearly all colleges and universities. In terms of the number of teachers involved, College Composition probably involves more personnel than does any other college course. Any significant findings concerning this course are likely, therefore, to be widely useful.

College courses in composition are not customarily taught in large lecture-demonstration sections, so that an experiment in using closed-circuit television in composition classes was somewhat bold. Further, developing ability in writing is a very complex matter. The problems of learning involved tend to be more individual and to demand more personal attention than do the problems of learning many college subjects. In selecting College Composition for television experimentation, therefore, the college, consciously, placed an unusually heavy demand upon pedagogy.[1]

Course Description

College Composition (English R–1, R–2) is a two-semester, six-point course in English fundamentals.

The basic objective of the course is "the teaching of the principles of writing, reading, and thinking." During the first semester, "the emphasis is on correctness and effectiveness of writing and thinking," including research documentation; in the second semester, while the principles of writing are still emphasized, the subject matter of the course shifts to more creative forms of literature (stories, poems, plays), and the elements of literary criticism are taught.

Course Design

For both semesters, English Composition was offered both on television and through conventional means of instruction. The televised lectures both semesters made use of a variety of production aids ranging from blown-up themes to pictures and recordings.

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[1] This course, somewhat differently handled, was presented via television in 1955–1956. *See* Thomas Clark Pollock, *Closed-Circuit Television as a Medium of Instruction, 1955–1956* (New York: New York University, 1956).

During the first semester, there were twelve television sections and six conventional sections of the course. Five of the six conventional classes were taught by instructors who also taught a television section. During the second semester there were nine television sections and four conventional sections, two of which were taught by television-section instructors. There were 116 students in the television sections and 115 in the conventional sections during the first semester; during the second semester, there were 105 television-section students and 88 conventional-section students.

The television classes met for an hour and fifteen minutes twice a week. A televised lecture-demonstration, lasting about forty-five minutes, was followed each time by a discussion, writing, or testing period. The television viewing groups varied from 15 to 45 students; the follow-up discussion groups ranged from 10 to 15 students each.

Some conventional sections met twice a week, as did the television classes; others met three times a week for fifty-minute periods. Conventional sections contained from 25 to 30 students.

The goals of the course, whether it was taught conventionally or by television, were the same and all sections followed the same syllabus.

Staff Structure

One member of the English faculty, Assistant Professor William E. Buckler, assumed the responsibility for the planning and presentation of all television lecture-demonstrations. The discussion-section leaders performed all the remaining usual faculty functions. They were responsible for reading students' themes, holding student conferences, and grading students' work.

The discussion-section leaders ranged in status from graduate assistants to full professors, and in experience from very little teaching to years of faculty experience. There were no group meetings of discussion leaders and lecturer during the year. Professor Buckler led no discussion group.

Student Structure

English R–1, R–2, is a one-year course, divided into two separate semesters of work. Students in television sections of R–1 were also assigned to television sections of R–2. Thus, roughly 75 per cent of the television students in R–2 had had one semester's experience in learning by television.[2]

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[2] The remaining 25 per cent consisted primarily of transfer students.

Study Objectives

The first objective of the study was to determine whether English Composition could be taught via television at least as successfully as it could by conventional methods. A second objective was to determine whether the use of audio and visual aids, made possible by television, might make television even more effective than in-person teaching. A third objective was the measurement and analysis of student attitudes toward this course as presented via television and toward televised instruction in general. (For attitudinal responses, *see* Chapter 5.)

Instruments of Measurement

Measures of Achievement

The nationally used Cooperative English Test, a two-hour objective test containing subscores on "Mechanics of Expression," "Effectiveness of Expression," and "Reading," was administered at the beginning and also at the end of the first semester to all television and conventional sections. The Cooperative Test on Literary Comprehension, a forty-minute objective test, was administered at the beginning and also at the end of the second semester.

Themes written at the beginning and end of the first semester and at the end of the second semester were also used as a measure of achievement. These were sent, for evaluation, to the Educational Testing Service at Princeton. They were there ranked on a scale of nine, the grades thus varying from one to nine.

Measures of Attitude

A student attitude questionnaire, developed by Professor Louis Heil and reviewed by the University Television Evaluation Committee, was administered at the beginning and again at the end of all 1956–1957 New York University televised courses with the exception of French Reading. The questions dealt with student reactions to specific aspects of televised instruction and with their general attitudes toward televised instruction. The end-of-term questionnaire, in addition, dealt with student attitudes toward enrolling in future televised courses.

The Findings

Learning

1. INITIAL-KNOWLEDGE LEVEL AND LEARNING

For purposes of analysis each term, students in the television classes were grouped into three initial-knowledge levels on the basis of their scores on the pre-course administered test. The same was done with students in conventional classes. End-of-term test scores were then compared for these six groups for both terms. In English R–1, within both the television and the conventional class groups, those students whose initial-knowledge level was high improved less than did those who arrived with the fewest skills and abilities in English composition. However, this relationship between initial-knowledge level and achievement is slight among the three conventional groups, and is statistically significant only in the comparison of the middle and low initial-knowledge level groups in the television sections (cf. Appendix, Table English–A).

Second-semester (English R–2) scores show a more clear-cut relationship between initial-knowledge level and achievement. For both media of presentation, amount of achievement increased as initial-knowledge level decreased, and students in the low initial-knowledge level improved significantly more than did high initial-knowledge level students (*see* Appendix, Table English–B).

This same relationship emerged when students were divided into initial-ability level groups on the basis of written themes. Both semesters, in both television and conventional classes, the initially least skilled improved significantly more than did the initially most skilled. Again, amount of improvement increased as initial ability decreased (*see* Appendix, Tables English–C and English–D).

SUMMARY

When achievement as measured by test scores and themes was analyzed by initial-knowledge level, students in the high initial-knowledge level groups emerged with the highest scores regardless of medium of instruction. However, students entering on the low level consistently showed greater improvement than did the initially most highly skilled students in both television and conventional classes. The difference in achievement was statistically significant for both media of presentation for theme writing both semesters and for R–2 test scores.

2. INITIAL-KNOWLEDGE LEVEL AND MEDIUM OF INSTRUCTION

TEST SCORES

When the initial-knowledge level of R–1 students is held constant and achievement by medium of instruction is examined, it is clear that students in the conventional classes on all knowledge levels improved more than did television students in R–1, that is, during the first semester. However, the difference between the two groups is not significant on any of the initial-knowledge levels (*see* Table 1).

TABLE 1

English R–1: End-of-Semester Test Scores of Initial-Knowledge Level Groups by Medium of Instruction

Initial-Knowledge Level and Medium of Instruction	*Pre-test Scores* $(\overline{X})$	*Post-test Scores* $(\overline{X})$	*Gain**	*t (Gain)*
High-TV (N=44)	69.09	70.45	1.36	1.39
High-Conventional (N=36)	67.19	69.97	2.78	
Middle-TV (N=37)	58.43	59.45	1.02	1.91
Middle-Conventional (N=38)	57.53	60.45	2.92	
Low-TV (N=35)	49.89	52.86	2.97	0.01
Low-Conventional (N=41)	49.32	52.39	3.07	

---

* Gain is here derived by subtracting mean pre-test scores from mean post-test scores.

When the initial-knowledge level is held constant for the second semester in the English course, a different pattern emerges. Television students in all initial-knowledge level groups scored higher and improved more than did comparable groups in conventional sections (*see* Table 2). This difference in achievement is significant, however, only within the high initial-knowledge level group.

TABLE 2

English R–2: End-of-Semester Test Scores of Initial-Knowledge Level Groups by Medium of Instruction*

Initial-Knowledge Level and Medium of Instruction	*Pre-test Scores* $(\overline{X})$	*Post-test Scores* $(\overline{X})$	*Gain*	*t (Gain)*
High-TV (N=45)	56.2	53.4	−2.8	2.19
High-Conventional (N=28)	57.5	51.5	−6.0	
Middle-TV (N=32)	44.5	44.5	0.0	0.74
Middle-Conventional (N=32)	44.7	43.6	−1.1	
Low-TV (N=28)	34.8	37.8	3.0	1.15
Low-Conventional (N=28)	31.1	32.4	1.3	

---

* Post-test means are in some cases lower than pre-test means. The testing situation at the end of the semester necessitated a shortened test-time period. However, the time period was the same for all television and conventional classes, thus permitting a comparison of scores.

While these patterns are not statistically significant, they are, nonetheless, highly implicative. Conventional-class students outscored television students during the first semester, when television learning was a new and unprepared-for educational experience. The reversal of this pattern, a reversal that reaches statistical significance within the high initial-knowledge level group, occurred after students had had one semester of television experience. Why did such a pattern reversal occur?

It is possible that, in College Composition, the more creative forms of literature and the elements of literary criticism can be taught more efficiently by television than by conventional means of instruction, while "correctness and effectiveness of writing and thinking" are most efficiently taught in the traditional manner. But it is at least equally possible that the new education medium, television, might require students to invent new learning techniques in order to benefit fully from the new medium. After a period of television experience (here, one semester), students perhaps did invent such techniques. And, if they did, since they outperformed conventional-class students, it is possible that televised instruction, at least in some courses, can be more efficient than traditional means of instruction.

It is interesting, too, that the students who most efficiently adapted to television learning were the most knowledgeable. Perhaps those most skilled in an area learn to learn in that area most easily. And perhaps the initially less skilled students would also achieve significant differences in the amount learned if they had more time to develop learning techniques appropriate to television.

Our findings do not explain why the reversal took place, but they do suggest lines of investigation that could lead to such an explanation.

THEME WRITING

An analysis of the theme scores by medium of instruction, holding initial-ability level constant, reveals no clear pattern.

For English R–1, television students on the initially high ability level outperformed conventional-class students. However, conventional students on the middle and low initial-ability levels outperformed television students of comparable ability levels. The differences are slight for the high and middle ability groups; within the low group, however, the difference is significant on the .01 level (*see* Table 3).

For English R–2, there is no pattern at all. Within the low ability group, television students outperformed conventional-class students, but the difference is small. Within the high ability group, conventional-class students significantly outperformed television students, but writing ability as measured by theme scores deteriorated for both groups.[3] Within the middle group there is no difference in achievement (*see* Table 4).

---

[3] It should be remembered that in English R–1 the stress was on "correctness and effectiveness of writing and thinking," while in English R–2 the emphasis was on reading and discussion of the types of literature as well as the principles of effective written communication.

Table 3

English R–1: Achievement (Theme Writing) of Initial-Ability Level Groups by Medium of Instruction

Initial-Ability Level and Medium of Instruction	*Pre-scores* $(\overline{X})$	*Post-scores* $(\overline{X})$	*Gain*	*t (Gain)*
High-TV (N=38)	6.16	6.55	0.39	0.23
High-Conventional (N=51)	6.06	6.35	0.29	
Middle-TV (N=29)	4.07	5.31	1.24	0.38
Middle-Conventional (N=24)	4.00	5.42	1.42	
Low-TV (N=42)	3.07	4.51	1.44	2.95
Low-Conventional (N=24)	2.17	5.04	3.04	

Table 4

English R–2: Achievement (Theme Writing) of Initial-Ability Level Groups by Medium of Instruction

Initial-Ability Level and Medium of Instruction	*Pre-scores* $(\overline{X})$	*Post-scores* $(\overline{X})$	*Gain*	*t (Gain)*
High-TV (N=23)	7.65	5.61	−2.04	2.77
High-Conventional (N=29)	7.69	6.83	−0.86	
Middle-TV (N=36)	5.72	5.83	0.11	
Middle-Conventional (N=34)	5.29	5.41	0.12	
Low-TV (N=18)	3.06	4.28	1.22	0.27
Low-Conventional (N=25)	3.40	4.36	0.96	

3. LEARNING, BY MEDIUM OF INSTRUCTION

College Composition, whether it stresses the mechanics of writing or the elements of reading and criticism, can apparently be taught through closed-circuit television about as well as through ordinary means of instruction. In English R–1 conventional sections improved more than did television sections, and in English R–2 television students outperformed conventional students. In neither case, however, was the difference significant (*see* Tables 5 and 6). The achievement of students in both conventional and television sections, though small in the absolute, is within the normal range found in national use of the tests.

Table 5

English R–1: Learning as Measured by Co-operative English Test, by Medium of Instruction

Medium of Instruction	*Pre-test Scores* ($\bar{X}$)	*Post-test Scores* ($\bar{X}$)	*Adjusted Post Scores* ($\bar{X}$)*	*t*
TV (N=116)	59.9	61.6	60.7	
Conventional (N=115)	57.6	60.6	61.5	1.40

---

* The adjusted post-test means were obtained by covariance analysis and essentially correct the actual post-test means for differences in pre-test means scores. These values are the values of the post-test means that would have been found if the sub-group means had been both equal to each other and to the total mean.

Table 6

English R–2: Learning as Measured by Literary Comprehension Test, by Medium of Instruction

Medium of Instruction	*Pre-test Scores* ($\bar{X}$)	*Post-test Scores* ($\bar{X}$)	*Adjusted Post Scores* ($\bar{X}$)	*t*
TV (N=108)	46.1	46.0	45.4	
Conventional (N=105)	44.4	42.7	43.3	1.37

In theme writing, there again is no significant difference between the two media of instruction (*see* Tables 7 and 8).

Table 7

English R–1: Learning as Measured by Theme Evaluation, by Medium of Instruction

Medium of Instruction	*Pre-test Scores* ($\bar{X}$)	*Post-test Scores* ($\bar{X}$)	*Adjusted Post Scores* ($\bar{X}$)	*t*
TV (N=109)	4.40	5.53	5.57	
Conventional (N=99)	4.64	5.79	5.74	0.71

Table 8

English R–2: Learning as Measured by Theme Evaluation, by Medium of Instruction

Medium of Instruction	*Pre-test Scores* ($\bar{X}$)	*Post-test Scores* ($\bar{X}$)	*Adjusted Post Scores* ($\bar{X}$)	*t*
TV (N=77)	5.67	5.40	5.38	
Conventional (N=88)	5.75	5.58	5.60	1.29

In both semesters of the course, there was no significant difference in the learning of the television sections as opposed to the conventional sections. However, there is one interesting, though not statistically significant, relationship. An analysis of Tables 5 and 6 indicates that conventional-class students did better than television students the first semester. However, television students surpassed conventional students the second semester.[4] Although the differences are not statistically significant, they again suggest that perhaps students cannot fully benefit from televised lectures until they have had some experience with learning through television. The data then seem at least to suggest that panel study techniques applied here might find what usual studies of television learning do not find. It is surely not improbable to suppose that students trained for twelve years to learn in conventional teaching situations might take time to develop equally efficient techniques for learning in a new television situation. It might well be that, when such techniques are developed, well-presented television courses may be found to be more effective in stimulating learning than traditional means of instruction.[5]

4. SUMMARY: LEARNING

BY INITIAL-KNOWLEDGE LEVEL

1. In both halves of the English course, and for both media of presentation, the initially most skilled students emerged with the highest test scores.
2. In both television and conventional classes during the first semester (stressing "correctness and effectiveness of writing and thinking"), students with initially low test scores improved more (but not significantly more) than did students who entered the course with more knowledge.
3. During the second semester (stressing "introduction to literary types") for both media of presentation, amount of achievement (as measured by test scores) increased as initial knowledge decreased. The difference in improvement of initially low and high knowledge level students was statistically significant.

---

[4] Theme writing (Tables 7 and 8) does not follow this pattern of reversal, but this is to be expected. The course objectives shifted from techniques of expression to literary comprehension the second semester.

[5] Several instructors participating in another of the televised courses offered at New York University brought up this point, though in another connection. They felt that students, when first entering a televised course, needed some help in how to learn from television.

> *Instructor "O":* "There ought to be more explicit written instructions to the students at the beginning of the semester, telling them how to abstract the significant generalizations from a television transmission. They need to be told how to take notes from television."
>
> *Instructor "P":* "I feel there is a need for more special class sessions (nontelevision) to discuss general student problems related to the television transmission. Students don't know how to take notes here."
>
> *Instructor "S":* "Television with visual aids involves a new technique on the part of the students. It's hard to take notes with visuals and dramatizations. . . . Yes, a few of the students said this to me."

4. The degree to which students improved their theme-writing ability varied inversely with their entering-skills level. Both semesters, in both televised and conventional classes, the initially least skilled improved significantly more than did the initially most able.

5. For both semesters and both media of presentation, students entering with the least knowledge and fewest skills benefited the most.

BY MEDIUM: INITIAL-KNOWLEDGE LEVELS HELD CONSTANT

6. In English R–1, test scores of conventional-class students on all initial-knowledge levels improved more than did test scores of television students. The differences, however, were not significant.

7. In English R–2, television students on all initial-knowledge levels scored higher and improved more than did conventional-class students. The difference in achievement, however, is significant only within the high initial-knowledge level group.

8. When theme-writing scores were compared for English R–1, conventional-class students on the initially low level improved significantly more than did television students on the comparable level.

9. When theme scores were compared for English R–2, conventional-class students in the initially high ability groups significantly outperformed comparable television students. (Note, however, that initially high ability students in both television and conventional classes showed a diminution rather than an increase in writing ability.)

BY MEDIUM

10. Students learned the subject matter of College Composition regardless of the medium of instruction. Both halves of the course can be effectively taught using televised lectures followed by in-person discussion groups.

CONCLUSIONS

11. For the first semester, conventional-class students did better than television students, while second-semester television students (most of whom had had R–1 televised) did better than did conventional students.

12. This reversal of pattern, while not statistically significant, suggests that learning in televised courses may be, in part, a function of experience. It is possible that students, having learned how to learn from television, may derive more from televised courses than from conventional courses, assuming both are equally competently presented.

13. In terms of the implicit hypotheses of the experiment, New York University was both successful and unsuccessful. We assumed that College Composition could be taught by television and we were correct in this assumption. We assumed that televised instruction, using visual and audio

aids, might be even more effective than in-person teaching, and this assumption was neither fully proved nor disproved.

5. EFFECT OF THE INSTRUCTOR ON LEARNING

It was assumed, at the outset of the experiment, that the two major variables affecting learning would be student ability and medium of instruction. Serendipity, however, led us to add one further variable. A relatively cursory analysis of the data suggested that there was a variable more important than either initial-knowledge level or medium of instruction. The instructor (discussion group leader) more than the other tested variables seemed to account for class differences in learning. A more careful analysis confirmed this tentative finding.

THE RELATIVE INFLUENCE OF INSTRUCTOR AND METHOD

English R–1 Test Scores: Five of the thirteen instructors in English R–1 each taught one television and one conventional section (the remaining eight taught only one section of the course). Data pertaining to the pairs of sections taught by the five instructors are presented in Table 9. By allowing us to hold first method and then instructor constant, these data provide some clues to the relative importance of the two variables.

TABLE 9

English R–1: Five Pairs of Classes by
Initial-Knowledge Level (Test Scores) and Gain*

	Television			*Conventional*		
Instructor	*Pre-score*	*Gain*	*Rank*†	*Pre-score*	*Gain*	*Rank*
B	59.3	2.1	4	53.2	1.0	5
E	56.1	3.4	2	56.9	4.0	2
F	64.8	−0.2	5	58.7	3.1	3
I	59.3	4.8	1	55.9	7.5	1
K	62.0	2.4	3	57.2	2.2	4

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* Gain here is derived by subtracting the mean pre-test scores from the mean post scores.

† Rank here means the ranking of the five instructors by achievement (gain) of their classes within each medium of instruction. One denotes greatest class gain; five denotes the least.

Variations in gain with the method held constant may be read directly from the table. Gains for the television sections range from −0.2 to 4.8, while gains for the conventional sections range from 1.0 to 7.5. The range of variation in gain with the method held constant is thus 5 for the television sections and 6.5 for the conventional sections.

Variation in gain with the instructor held constant cannot be read directly from the table but must be computed for each instructor. The difference between the gains of the five pairs of sections is, respectively, 1.1, 0.6, 3.3, 2.7, and 0.2. The mean of these variations is 1.59. The mean variation does not approach the magnitude of the variations (5 and 6.5) noted when method is held constant. Further, for each of the pairs of classes the variation is less than that found for both television and conventional classes when method of presentation is held constant.

The data, so far, suggest that the instructor is a more important influence on the amount learned than is the method of presentation.[6]

The ranking of the instructors within the television and conventional groups lends further weight to this supposition (*see* Table 9). The rank order correlation is .6, and the rank of only one instructor (Instructor "F") changed more than one place.

Inspection of Table English–E (*see* Appendix) offers additional evidence of the relative importance of instructor and method. Although conventional classes on the whole improved somewhat more than television classes, the television class of Instructor "I" improved more than did all conventional classes other than the one taught by Instructor "I." The television class taught by Instructor "I," further, improved more than all other television classes and improved significantly more than the class of Instructor "C."

English R–1 Theme Writing: The degree to which students improved in writing skills as measured by theme evaluation also shows a wide variation by instructor (*see* Table 10). Variation in gain with the method held constant may again be read directly from the table. Gains for the television sections range from 0.16 to 2.18, while gains for the conventional classes range from −0.10 to 1.81. The range of variation in gain with method held constant is thus 2.02 for the television sections and 1.91 for the conventional sections.

Variation in gain with instructor held constant for the five pairs of classes is, respectively, 1.02, 0.50, 1.35, 0.26, and 0.15. The mean of these variations, 0.66, does not approach the magnitude of the variation (2.02 and 1.91) noted when the methods were held constant. (The greatest variation possible is 8, since themes were graded on a nine-point scale, ranging from 1 to 9.) Further, for each of the pairs of classes the variation is less than that found for both televised and conventional classes when method of presentation is held constant.[7]

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[6] It is to be noted, however, that the magnitude of variation between pairs and sets of five has been compared, and that the influence of initial level of knowledge and possible unidentified variables have not been eliminated from these data. The conclusion must thus here remain suggestive rather than conclusive.

[7] It is to be noted, however, that again the magnitude of variation between pairs and sets of five has been compared, and that the influence of initial level of knowledge and possible unidentified variables have not been eliminated from these data. The conclusion must thus here remain suggestive rather than conclusive.

TABLE 10

English R–1: Five Pairs of Classes by Initial Writing Skills and Gain*

	Television			*Conventional*		
Instructor	*Pre-score* ($\bar{X}$)	*Gain*	*Rank*†	*Pre-score* ($\bar{X}$)	*Gain*	*Rank*
B	3.86	0.93	3	4.72	−0.09	4
E	3.91	2.18	1	4.41	1.68	2
F	5.09	0.46	4	4.63	1.81	1
I	4.18	0.16	5	4.73	−0.10	5
K	4.80	1.30	2	5.15	1.15	3

* Gain here is derived by subtracting the mean pre-test score from the mean post score.
† Rank here means the ranking of the five instructors by achievement of their classes within each medium of instruction. One denotes highest class gain; five denotes the lowest.

The data thus again suggest that the instructor is a more important influence on the amount learned than is the method of presentation.

And again, lending further weight to this supposition, we find that the students of some instructors improved significantly more than did those of other instructors (e.g., the television class of Instructor "A" improved significantly more than did the television class of Instructor "I").[8]

RELATIVE INFLUENCE OF INSTRUCTOR, METHOD, AND INITIAL-KNOWLEDGE LEVEL

A comparison of sections that had identical or nearly identical levels of initial knowledge (Table 11) further supports our point. Insofar as each of these clusters happens to occur among sections exposed to the same method of presentation, Table 11 in effect notes the result of holding both method and initial-knowledge level constant. It will be observed that the gain varies within each of the three clusters.[9] The only identified variable to which such variation can be attributed is the instructor.

A similar procedure (*see* Table 12) using theme scores yields the same finding; viz., the instructor is the only identified variable that explains the variation.

English R–2: There were only two conventional English R–2 classes taught by instructors who also led television classes (Table 13).[10] These are, of course, by themselves, too few cases from which to generalize. However, gain among all television sections varied from −4.2 to 3.9;

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[8] For scores of all sections, *see* Appendix, Table English–F.

[9] These clusters, by a happy chance, roughly correspond to the high, middle, and lowest thirds of the range of initial level of knowledge.

[10] *See also* Appendix, Table English–G, for variation in learning by method of instruction.

among conventional classes gain varied from −4.7 to 0.5 (*see* Appendix, Table English–G). Again some of the classes improved significantly more than did others. Added to the findings of English R–1, the data here tend to support the conclusion that the most crucial identified variable would seem to be the instructor.

TABLE 11

Test Scores, English R–1: Variation in Learning by Instructor with Medium and Initial-Knowledge Level Held Constant

Instructor	*Medium*	*Initial-Knowledge Level*	*Gain*
H	Television	63.1	1.3
A	Television	63.8	2.0
F	Television	64.8	−0.2
B	Television	59.3	2.1
I	Television	59.3	4.8
G	Television	59.5	0.5
I	Conventional	55.9	7.5
E	Conventional	56.9	3.0
K	Conventional	57.2	2.2

TABLE 12

Theme Writing, English R–1: Variation in Learning by Instructor with Medium and Initial-Knowledge Level Held Constant

Instructor	*Medium*	*Initial Theme Scores*	*Gain*
F	Television	5.09	0.46
C	Television	4.89	0.44
K	Television	4.80	1.30
A	Television	4.38	2.93
I	Television	4.18	0.16
E	Television	3.91	2.18
J	Television	3.90	1.30
B	Television	3.86	0.93
I	Conventional	4.73	−0.10
B	Conventional	4.72	−0.09
F	Conventional	4.63	1.81
E	Conventional	4.41	1.68

TABLE 13

English R–2: Two Pairs of Classes by Initial-Knowledge Level (Test Scores) and Gain

	Television		*Conventional*	
Instructor	*Pre-score* ($\overline{X}$)	*Gain*	*Pre-score* ($\overline{X}$)	*Gain*
C	49.2	−2.6	41.5	0.4
H	46.1	−1.1	42.3	0.5

ENGLISH FACULTY ATTITUDES

Toward the end of the second semester (April–June 1957), the majority of participating faculty members of all television courses were informally interviewed by the director-producer of the University's televised courses. Six College Composition instructors were included in this group of interviewees.

All six of the discussion leaders made anti-television comments in the interviews, and none could be classified as being in favor of the course as given on television. In addition, several were, in general, against televised instruction.

While none could here be said to be pro-television, the instructors varied widely in degree of antipathy:

> "I think students would have got more via conventional method of instruction. . . . I think television doesn't work for English Composition; students from high school aren't used to the lecture method of instruction. . . . I can see the possibility and desirability of having television on once every two weeks as a means of changing the monotony and as a way of showing all classes a standard of correcting themes and showing other instructors marking themes."

> "I have no bias against television. . . . But the basic problem of College Composition is that students need *individual* instruction. Students look on television as an entertainment medium. . . . There is more student passivity when students are watching television. They know they won't be called on to answer questions. . . . Students liked the relationship of ideas and visual materials. . . . They also liked the use of art objects in talking about the concept of form. . . . I think certain aspects of grammar could be taught via television."

> "I was loath to question students about television; I was sure I'd get negative reactions. . . . My students feel dislocated—the television professor is always a stranger. . . . I'm against lecturing, per se, in English composition. . . . It is wrong to assume the discussion period is an elaboration of the television lecture. Actually it is taken up with students' themes and problems. . . . I don't feel that the visual aids were too necessary. . . . In our mechanistic society, in time, students will no doubt adjust to instruction via television."

> "Both the students and I are bored with the televised lectures. . . . English Composition and English Literature don't lend themselves to television. . . . I do not approve of the teacher-student separation which happens in closed-circuit television. . . . Forty-five-minute transmissions are too long. . . . Student morale is lower in the television section than in the conventional section."

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While teacher effectiveness is of course a function of teacher skill, it is also affected by the attitudes of the teacher. Teachers must both be able and willing (if not eager) to teach if they are to be effective. Clearly, in this course, several of the instructors were not particularly anxious to succeed in their television sections. Further, they had no interest in the experiment, qua experiment. In short, the co-operativeness of the participating faculty varied greatly and it was in no case particularly strong. It is suggested here that the variation in learning by instructor may in part be a product of disparate faculty attitudes toward the course.

VARIATION BY INSTRUCTOR: SUMMARY AND INTERPRETATION

Although initial-knowledge level and medium of instruction are probably functioning variables here, the most important single variable appears to be the instructor.

At first glance this seems a very disappointing finding. Thousands of dollars and hundreds of work hours were apparently spent to discover a truism: some teachers are more effective than others. It is, however, a very useful and practical finding, for it emphasizes that all the co-operating teachers in a television course must be effective, and, most important of all perhaps, they must be co-operative if the instruction is to be as effective as possible.

Further, this suggests that one cannot truly measure the effectiveness of televised instruction unless the participating faculty is both able and co-operative.

Summary and Conclusions

1. In both English courses, and for both media of presentation, the initially most skilled students emerged with the highest test scores.
2. For both semesters and both media of presentation, students entering with the least knowledge and fewest skills benefited the most.
3. In English R–1, conventional-class students on all initial-knowledge levels improved their test scores more than did television students. The differences, however, were not statistically significant.
4. In English R–2, television students on all initial-knowledge levels scored higher and improved more than did conventional-class students. The difference in achievement, however, is significant only within the high initial-knowledge level group.
5. When theme-writing scores were compared, conventional-class R–1 students on the initially low level improved significantly more than did television students on the comparable level. Conventional R–2 students in the initially high ability group significantly outperformed comparable television students.

6. Students learned the subject matter of College Composition regardless of the medium of instruction. Both halves of the course can be effectively taught using televised lectures followed by in-person discussion groups.

7. Conventional-class students did better than television students the first semester, while for the second semester, television students (most of whom had had R–1 televised) did better than conventional-class students. These differences were not significant.

8. This reversal of pattern suggests that learning in televised courses may be, in part, a function of experience. Assuming both are equally competently presented, it is possible that students experienced in learning via television may derive more from televised courses than from conventional courses.

9. The greatest part of the class-to-class variation in learning can apparently be explained in terms of the discussion leaders. We know that the English staff varied in teaching experience. Staff members clearly varied in ability. In addition, they also varied in terms of attitude toward televised instruction in general and this televised course in particular. All three of these characteristics help to explain variations in learning by instructor. It is suggested, then, that importance of co-operating attitudes on the part of participating faculty should not be underestimated. Negative teacher attitudes may be expected to be reflected to some degree in teaching. It is, then, quite possible that the effectiveness of televised instruction cannot be accurately measured unless all participating faculty is both able and co-operative.

10. In English R–1 and R–2, the instructors (not the television lecturer) were, in varying degrees, anti-television. Yet, when we examined learning by method of presentation, the televised classes in general did as well as, and at times better than, the conventional classes. This suggests that, at least in this course, television might indeed have been significantly more effective than conventional instruction had the discussion leaders been truly co-operative. The data, of course, merely suggest and do not confirm this interpretation.

11. Television, then, is not inexorably successful or unsuccessful as a teaching device. Students will not automatically learn via television any more or less than they will automatically learn from a book. The instructor is still a crucial variable in the teacher-learner process. And it is possible that student experience with televised instruction is another crucial variable.

CHAPTER 2

MAN'S CULTURAL HERITAGE

SCHOOL OF EDUCATION

Choice of Course

The School of Education selected Man's Cultural Heritage as its televised offering because of its content and structure, its students, and its faculty. Since the content deals primarily with ideas rather than simple facts and physically demonstrable techniques, it seemed to offer an especially rich experimental challenge. Its normal structure, which provided both for lectures given to the total group and small group meetings to discuss the lectures and readings, was easily adaptable to television. It is a required course for many disparate curricula, and thus included a large number of students of widely varied interests and backgrounds. Finally, the faculty of the Department of Educational Sociology and Anthropology was keenly interested in the experiment, and hence very co-operative.

Course Description

Man's Cultural Heritage (Bulletin: Core 11[1]) is a one-semester, four-point course staffed by members of the Department of Educational Sociology and Anthropology. Concentrating on specific areas in our cultural heritage, the course addresses itself first to the nature of culture, normative behavior, the institutional structure of society, and the social value system. It then treats the historical development of five major values in contemporary American society: the family, the equality of man, religion, science, and political democracy. Each of these social values, except the "equality of man," is also a social institution, and the course also considers the functional interrelationships among the institutions and the relationship between the institutions and the value system of our society.

Course Design

Students in the course (119 the first semester, 106 the second) were divided into four classes which met simultaneously for two hours twice weekly. The first half of each class period consisted of a televised lecture (usually 45–50 minutes). The rest of the period was devoted to a faculty-led class discussion of the lecture, the readings, and topics related to but not specifically covered by either.

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[1] The School of Education Teacher Education Program includes six "core" courses on the freshman-sophomore level. Each of the courses is interdisciplinary, and the six, together, offer an integrated introduction to the fields of physical science, behavioral science, communication, and the arts.

Staff Structure

Each discussion class was led by a faculty member. Of the four discussion leaders, two were graduate students with some teaching experience and two were New York University faculty members. One of the regular staff members, Assistant Professor Hope L. Klapper, was chiefly responsible for the television presentations. The second, Professor Ethel J. Alpenfels, gave several of the televised lectures. In addition, three televised lectures were presented by the chairman of the Department of Social Studies, Professor Samuel P. McCutchen, and one was presented by a non-University guest lecturer.

All viewing periods were proctored either by the discussion leader or by a mature graduate student.

Experimental Design

That students can learn from television has been conclusively proved by hundreds of studies. The New York University experiment with Man's Cultural Heritage was designed not merely to check these findings but rather to investigate the effects of the fullest possible use of the visual potentialities of the medium. Psychological and communication research indicate that well-selected visual and audio material can increase learning. Television offers the opportunity to test a far broader range of visual and audio techniques than is possible in traditional classroom situations.

In order to test the effects of full-scale use of audio and visual aids, Man's Cultural Heritage was offered the first semester with the televised portion of the course closely simulating a conventional lecture situation; the lecturer used no visual aids other than the usual blackboard and a few simple maps. During the second semester, the same lectures were given by the same instructors, but a systematic effort was made to use all the audio-visual aids (charts, graphs, records, pictures, cartoons, dramatizations, etc.) that seemed pertinent to the materials being taught.[2]

Selection of Production Aids

Since one purpose of this experiment was to test the effect on learning of well-selected audio and visual aids, it was obviously necessary that the aids used be well chosen. In an attempt to assure the use of effective devices, the opinions of persons experienced in television and persons experienced in teaching were obtained. It is recognized, of course, that the opinions of authorities are not always as reliable as are empirical tests. This, of course, is particularly true in a field such as educational television where even the authorities have had limited experience.

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[2] All 1956–1957 New York University televised courses used such production aids except Man's Cultural Heritage, First Semester.

Staff and Method: After each lecture during the first semester there was a conference in which the visual and audio aids for that lecture the next semester were discussed. The personnel at these conferences always included the professor in charge of the course; the lecturer (three persons other than the major professor gave at least one lecture); a materials co-ordinator, whose ingenuity, imagination, and industriousness were required to translate general requests[3] into concrete reality; and one or two professional television producers or directors from WRCA–TV. In addition, the meetings sometimes included a WRCA–TV production assistant and the chairman of the Department of Television, Motion Pictures, and Radio of New York University, a man highly experienced in teaching and in both educational and commercial television. Each of these semiweekly meetings lasted from two to three hours.

Suggestions for production aids[4] originated with all members of the conferences. The television experts gave the final opinion on each idea in terms of feasibility, but the lecturer and professor in charge of the course made the final decision.

Thus the production aids used the second semester were chosen after lengthy and careful discussion but without any pre-tests. And, it will be noted, their ultimate selection rested with teachers wholly inexperienced in televised instruction.

Instruments of Measurement

Measures of Achievement

An objective test, containing 98 items, was prepared jointly by the major television lecturer and an outside consultant trained in the social sciences.[5]

This test was administered at the first and last sessions of the course each semester and served as the sole measure of achievement.

Measures of Attitude

In addition to the questionnaires used for all 1956–1957 New York University televised courses, a special questionnaire, designed to elicit reactions to both specific production aids and the use of production aids in general, was used.

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[3] E.g., "Get pictures of three young children of different races and cultures eating."

[4] The phrases "production aids" and "production devices" in this report refer specifically to audio and visual devices used to illustrate and supplement the lectures.

[5] The reliability, Kuder-Richardson, of the test, when given as a pre-test, was 0.76.

The Findings

1. PRODUCTION DEVICES AND COURSE INTEREST

Production devices ranging from cartoons, graphs, and pictures to voice recordings, music, and dramatizations were used during the second semester of Man's Cultural Heritage. At the end of the second semester, students were given a questionnaire designed to elicit their reactions to the visual and audio techniques used in the course. Their response was unequivocal. Almost nine tenths checked the statement, "On the whole, the production aids definitely made the course more interesting to me," while only 5 per cent felt that these devices did not add to the interest of the course (*see* Table 1).

2. STUDENTS' PERCEPTION OF THE USEFULNESS OF PRODUCTION AIDS

Students in Man's Cultural Heritage, second semester, strongly and firmly believed that the visuals helped them learn (*see* Table 1). When asked to check as many responses as described their feelings, almost everyone in the class (99 per cent) agreed that "having definitions and major points shown on the screen was very helpful." Over three fourths of the students (78 per cent) felt that "production aids made it easier to learn the materials of the course," and two thirds (64 per cent) checked "The production aids were, for me, definitely aids; they usually helped me learn." Equally significant, only 7 per cent felt they "would have learned just as much had there been only an instructor and a blackboard on the screen." Only 1 per cent felt that the production devices were more often distracting than helpful.

Students definitely felt, then, that the audio and visual aids made the course more interesting and increased learning and/or made it easier for them to learn. However, it should be noted that they were somewhat more certain that production devices increased course interest (87 per cent) than that the devices were aids to learning (64 per cent, 78 per cent). Indeed, a fourth of the students checked "Production aids made the course more interesting but didn't increase amount learned." (*See* Table 1.)

3. ATTITUDE TOWARD TELEVISED INSTRUCTION

At the beginning of each semester, students were asked to indicate their attitudes toward taking a televised course. At the end of the semester their attitudes were again determined. The students entered the course, both semesters, with a generally favorable attitude toward educational television (*see* Table 2). Many had some reservations and some were displeased, but the majority attitude, both semesters, was favorable; most students were happy and not a little thrilled and excited at the prospect of a televised course.

TABLE 1

Student Reactions: Production Devices and Their Relationship to Course Interest and Learning

Response	*Per Cent**
Production aids definitely made course more interesting	87
Production aids definitely were aids in learning	64
Production aids made it easier to learn materials in course	78
Having definitions and major points on screen was very helpful	99
Production aids made course more interesting and helped me learn more	56
Production aids made course more interesting but didn't increase amount learned	25
Production aids did not make course more interesting	5
Production aids were more often distracting than helpful	1
Would have been just as interested if only instructor and blackboard were on screen	4
Would have learned just as much if only instructor and blackboard were on screen	7

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* Responses add to more than 100 per cent, since students were urged to check all responses that reflected their feelings.

TABLE 2

Reactions to Taking (Having Taken) This Televised Course*

	Term 1 (%)		*Term 2 (%)*	
Response	*Pre†*	*Post*	*Pre*	*Post*
Like it	70	59	73	90
Do (did) not like it	23	12	4	3
Mixed feelings	7	29	22	7

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* "What is your reaction to being (having been) involved in this course in which part of the instruction will be (has been) by television?"

† It is curious that, although the percentage who liked the idea was similar at the beginning of the two semesters, the percentage who disliked the idea was considerably less among the second group. The reasons for this are not ascertainable from the data. It is, of course, possible that some second-semester students had heard from their predecessors that televised instruction was better than they anticipated.

At the end of the first semester (the "bare-bones" course), students emerged less clearly enthusiastic than they had entered; almost a third (29 per cent) at the end of the semester had "mixed feelings." (However, those who had at the outset taken a dim view disliked the experience less often than they had expected. *See* Table 2.)

This is in sharp contrast to the response of students in the second-semester "production" version. These students liked the experience far more than they had anticipated, and 90 per cent checked "I have liked being in this ETV course." Thus, second-semester students, who took the production course, liked having had a televised course far more than did first-semester students, for whom the course employed no production aids.

Furthermore, this attitude difference haloed. Second-semester students were in general more favorably disposed toward televised instruction. When given a theoretical choice between further televised instruction and conventional instruction by the same instructor, over three fourths of the second-semester students chose televised instruction, whereas only half the first-semester students did likewise (*see* Table 3). When the choice lay between a televised course with an instructor of known excellence and a traditional course with an unknown instructor, 94 per cent of second-semester students chose the televised course with the known instructor, as opposed to 86 per cent of first-semester students (*see* Table 4).

Table 3

Preference of Class: Television versus Large Conventional Lecture*

Preference	*Term 1 (%)* *Post*†	*Term 2 (%)* *Post*†
Televised lectures	51	78
Conventional lectures	49	22

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* "Next semester you might have the option of enrolling in either a television section or a large in-person lecture section of a particular course. If both sections are taught by the same instructor (whom you like) and are given at hours that fit in with your schedule, which section would you choose?"

† This question was asked only at the end of the semester.

Table 4

Preference of Class: Television with a Known and Excellent Teacher versus Conventional Lecture with an Unknown Teacher

Preference	*Term 1 (%)* *Post**	*Term 2 (%)* *Post**
Televised lectures	86	94
Conventional lectures	14	6

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* This question was asked only at the end of the semester.

This generally more favorable attitude was, as might be expected, again apparent when students were given an opportunity to indicate their overall reactions toward televised instruction (*see* Table 5). Less than a third (27 per cent) of the first-semester students checked "Hope I can take more TV classes," but more than twice that proportion (61 per cent) of the second-semester students did so. For every three first-semester students who checked "Rather take several TV courses than several large lecture classes" five second-semester students did likewise.

TABLE 5

Attitudes Toward Television and Large Conventional Lecture Courses

Reaction	*Term 1 (%)**	*Term 2 (%)*
Just as soon take TV courses as large lecture courses	41	52
Rather take several TV courses than several large lecture courses	32	53
Hope I can take more TV classes	27	61
Like each term to have at least one of each (TV and large lecture)	20	32
Somewhat prefer large lecture; wouldn't mind taking a few TV courses	38	6
Much prefer large lecture classes to TV	12	3
Hope I never have to take another TV class	5	1
Don't really care whether it's TV or large lecture	12	4

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* Responses add to more than 100 per cent, since students were asked to check as many statements as they felt represented their feelings.

Summary: First-semester students emerged from the course with relatively favorable attitudes toward televised instruction, but students in the "production" course were considerably more enthusiastic. This attitude differential was evident in their reactions to this specific course experience, in their general reactions to televised instruction, and in reference to their preferences in two hypothetical television versus nontelevision class situations.

The lectures, lecturers, assignments, discussion leaders, classrooms, hours, and television sets were held constant for the two semesters. The only known difference was the addition in the second semester of visual and audio aids. The new production techniques of the second semester thus appear to be clearly related to the far more favorable attitudes toward this course and televised instruction in general. It is, of course, possible that an unknown variable was at work. The instructors themselves might have been more enthusiastic the second semester. Future research on this topic would do well to check on such possibilities. Pending such confirmation, the findings of the study may be taken to indicate that production aids have the desirable effects cited.

4. ACHIEVEMENT

a) *Variation by Method of Presentation:* Although most second-semester students were certain that they learned more and/or more easily than they would have had there been no production aids, their performance does not bear out their conviction. On the final examination students in the "bare-bones" version of Man's Cultural Heritage scored significantly higher than did students in the production version (*see* Table 6).

TABLE 6

Test Scores by Semester

Semester	*Pre-test* ($\overline{X}$)	*Post-test* ($\overline{X}$)	*Gain**
One ("bare bones")	58.8	77.9	19.1
Two (production)	62.6	73.8	11.2

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* Gain is derived by subtracting mean pre-test scores from mean post-test scores.

Thus second-semester students liked the course better, felt the production devices made the content more interesting, were in general more favorably disposed toward televised instruction, and felt that production aids were indeed aids to learning, but, despite such interest, attitudes, and convictions, they nevertheless scored lower on the final examination.

These findings point to at least a tentative conclusion that production aids do not increase learning and may conceivably lessen it. Our findings, however, cannot be viewed as conclusive for several reasons. We have not yet learned, for example, which kinds of visual aids and audio devices are most effective in aiding the student to learn specific kinds of information. (It is possible that some production devices greatly increase learning of a given kind, while others might not affect or might actually decrease such learning.)

An important factor mediating the findings is the test itself. Learning or achievement was here measured by the differences between students' scores on a pre-test and on the same test administered at the end of the semester. The test had a low ceiling, and this becomes particularly important when we note that second-semester students had a significantly higher initial-knowledge level than did first-semester students (*see* Table 6). They started on a higher level and the low test ceiling limited the measurable amount of progress they could make (*see* Table 7).

Again, we do not know but that the student may require a practice period before he is able wholly to benefit from visual and audio aids (*see* Washington Square College, pages 15, 19, 20).

The author believes careful and systematic research on these and related topics will greatly modify the tentative conclusion that production devices do not aid learning.

b) *Variation by Initial-Knowledge Level:* Each semester, for purposes of analysis, students were divided into three initial-knowledge level groups on the basis of their pre-test scores. Achievement was then examined by initial-knowledge level groups. In both semesters, students on the low initial-knowledge level showed a significantly greater gain in achievement than did students on the middle or high initial-knowledge level (*see* Table 7).

TABLE 7

Learning by Initial-Knowledge Level, Term One and Term Two

Initial-Knowledge Level	*Term One*			*Term Two*		
	Pre-score $(\overline{X})$	*Gain*	*"t"*	*Pre-score* $(\overline{X})$	*Gain*	*"t"*
High	67.1	13.0	H–M 2.84	74.1	6.1	H–M 1.80
Middle	57.6	20.4	H–L 5.72	63.0	10.2	H–L 5.57
Low	48.8	26.1	M–L 2.19	52.5	16.8	M–L 2.83

Students who entered the course relatively ignorant of the fields covered in the course both semesters improved significantly more than did those who were more knowledgeable upon entry.

c) *Variation by Instructor:* While students in all four discussion classes scored higher the first semester than the second, there was, each semester, considerable variation by instructor (*see* Table 8). Students of Instructor 3, first semester, learned significantly more than did the other three classes. Students of Instructor 2 showed an achievement significantly higher than those of Instructor 4 for both semesters and higher (but not significantly so) than all three classes for the second semester.

Clearly the instructor too is a crucial variable helping to determine class learning.[6]

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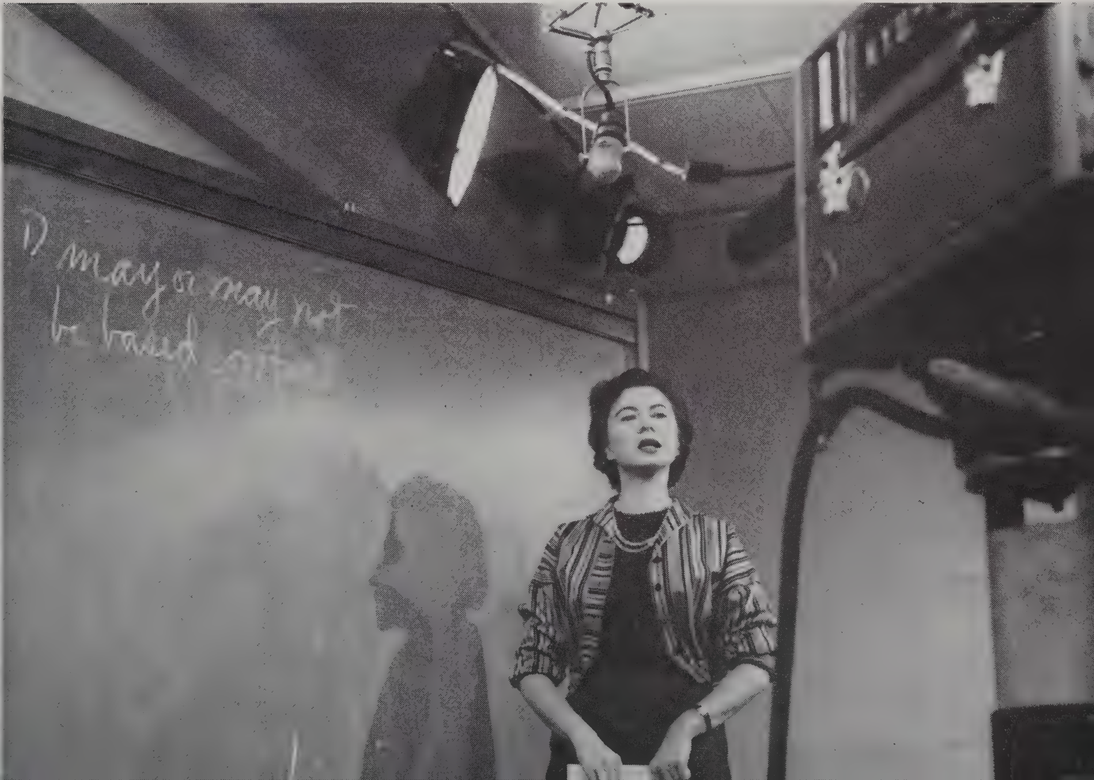
[6] For a detailed discussion of the role of the instructor, *see* Chapter 1, pages 21–26. It is relevant to note here that all four instructors were co-operative and interested in the television experiment. Some, however, were more enthusiastic than others.

Professor William E. Buckler lecturing on the library in the course in English Composition.

Professor Hope L. Klapper in televised lecture, Man's Cultural Heritage, first semester, without production aids.


D may or may not
be based

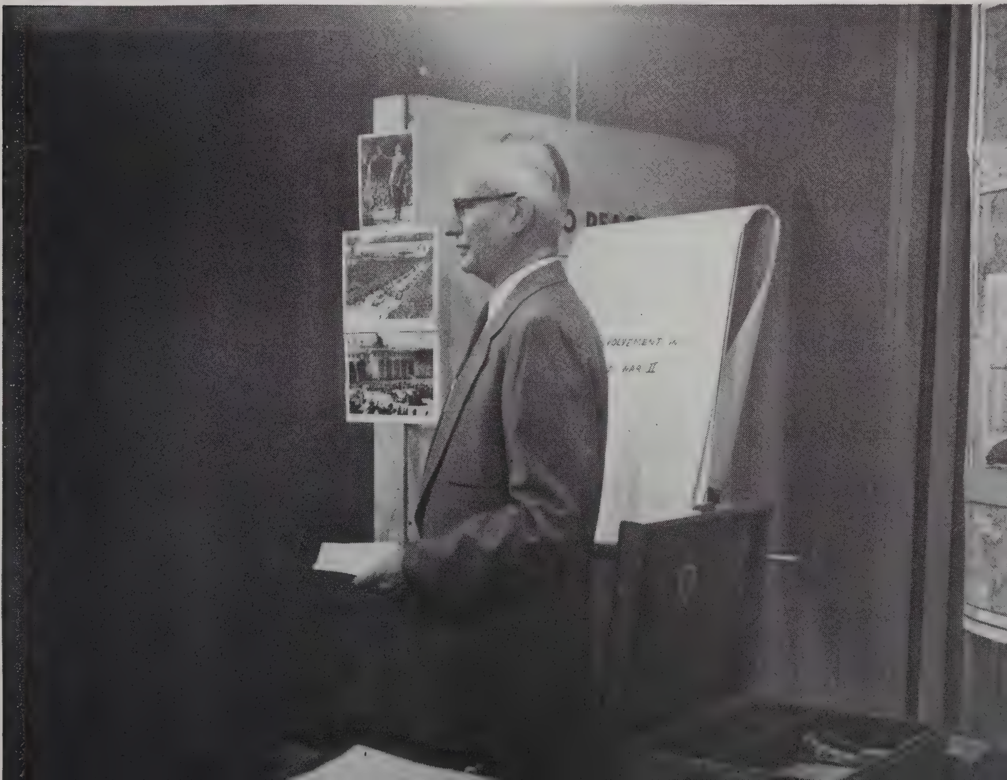
Classroom viewing of Professor Hope L. Klapper.

Professor Ethel J. Alpenfels lecturing in Man's Cultural Heritage, second semester, with dancers showing early religious dances.

MATERIAL
BEHAVIORAL
"A SOCIAL INSTITUTION IS A CLUSTER OF MATERIAL, BEHAVIORAL AND NON-BEHAVIORAL CULTURE TRAITS AND PATTERNS CENTERED AROUND THE SATISFACTION OF ONE OR MORE BASIC NEEDS"
NON-MATERIAL
MAN

Professor Hope L. Klapper in televised lecture, Man's Cultural Heritage, second semester, with production aids.

Professor Henry C. Atyeo teaching in History of Civilization.



Professor Max Sorkin rehearsing for course in French Reading.

Mrs. Janice Warnke teaching course in College Composition, showing part of studio from the control room (1955–1956).

TABLE 8

Achievement: Pre- and Adjusted Post-Course Scores* by Instructor

	First Semester		Second Semester	
Instructor	*Pre ($\overline{X}$)*	*Adj. Post ($\overline{X}$)*	*Pre ($\overline{X}$)*	*Adj. Post ($\overline{X}$)*
Instructor 1	58.5	76.6	61.8	73.4
Instructor 2	59.0	78.1	57.6	75.5
Instructor 3	58.2	83.2	69.0	74.8
Instructor 4	59.6	74.7	61.1	73.1

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* For an explanation of adjusted post-course scores, *see* Table 5, page 18.

Many interested in televised instruction have speculated on the necessity of student-lecturer contact. If such contact were indeed requisite for learning, the usefulness of educational television would be limited. In Man's Cultural Heritage, the instructor who was the most consistently effective (Instructor 2) gave none of the televised lectures. Her classes had no meaningful personal contact with the lecturers and nonetheless improved the most. Thus, televised instruction was here successful with students who never met with the television lecturers.

Summary

1. Students unequivocally felt that production devices made the course more interesting. They also, though somewhat less unanimously, felt that the production devices were definite aids for learning.

2. Students in the second (production) semester were on the whole more enthusiastic about the televised course, and this attitude haloed. Thus, they were more in favor of televised instruction in general than were first-semester students. Since the only known variable was the shift in production techniques, we can assume that the addition of production aids at least in part explains this attitude differential.

3. Despite the more positive attitudes toward televised instruction, the heightened course interest, and the students' conviction that production aids were indeed aids, first-semester students scored significantly higher than second-semester students on the final examination.

This seems to suggest that production devices may actually decrease learning. However, it is quite possible that the effect of production aids on learning has not been adequately tested here, because, first, the single measure of achievement was an objective test with a low ceiling. Also limiting the conclusiveness of the findings is the fact that the production devices used were not pre-tested. Hence, at best, the experiment tested the effectiveness of the specific devices used rather than the general effects of production devices. It may well be that a more precise testing of specific production aids must precede any measurement of the relative effectiveness of production versus nonproduction television.

Also relevant here, perhaps, are data from two other courses (*see* page 19), which suggest the possible necessity of a learning and practice period before students can efficiently learn from televised lectures that use production devices. It is perhaps not accidental that learning proceeded best during the first ("bare bones") semester when students needed to make relatively few adjustments in their learning habits.

4. The discussion-section instructors were found to be a second variable affecting learning. Students of some instructors significantly outperformed those of others. The class of Instructor 2 outperformed classes of Instructors 1 and 4 in both semesters.

5. The course, Man's Cultural Heritage, can be successfully taught via televised lectures followed by traditional (in-person) discussion sections even when the discussion section is not led by a television lecturer. The most consistently effective instructor was one who did not appear on any telecasts. Personal class contact with the lecturer seemingly is not a necessary prerequisite of student achievement.

CHAPTER 3

HISTORY OF CIVILIZATION

SCHOOL OF COMMERCE, ACCOUNTS, AND FINANCE

Choice of Course

The administrative officers and faculty of the School of Commerce decided for several reasons to use History of Civilization as its televised experimental course. It is a required course and thus has a large and varied enrollment; the content lends itself easily to visual presentation, and the course staff was willing to accept the challenge of a new medium of instruction that would invite the use of new methods and techniques.

Course Description

History of Civilization (in Bulletin: General 51–52) is a four-point, one-semester course required of all students and usually taken during the first semester of the freshman year. This course, surveying selected areas in the history of civilization, begins with the Greek period and ends with contemporary events. Each period and movement is studied in terms of its origins, characteristics, and influence on succeeding cultures. The student is given perspective for an understanding of the present through analysis and evaluation of selected areas of the past.

Course Design

History of Civilization was offered on television in the spring semester only. There were six television sections, ranging from 21 to 25 students each, and one conventional class[1] of 57 students.

The television sections met for two-hour periods twice weekly. The class session began with a televised lecture of roughly 55 minutes. The rest of the period was devoted primarily to conventional instruction, but roughly ten minutes of each follow-up period were devoted to questions on the lecture.

The conventional class met for one-hour periods four times weekly.

Staff Structure

Six faculty members staffed the televised course. Associate Professor Henry C. Atyeo was solely responsible for all televised lectures, although he did not himself give them all. Mr. Wallace Sokolsky appeared on some of the telecasts. The syllabus for the course was prepared by Associate Professor Atyeo and Mr. Sokolsky, both of whom had regularly taught the course in preceding years. Associate Professor Atyeo and Mr. Sokolsky each also led one discussion section, and Mr. Sokolsky also taught the one conventional class of History of Civilization.

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[1] Cf. Study Objectives, page 40.

The remaining four discussion sections were led by four instructors who were relatively inexperienced, and who had been hired specifically to complete the staff of the course.

Associate Professor Atyeo, as the instructor in charge of the course, was solely responsible for the ultimate choice of production aids. The latter covered a wide range of devices, from edited film clips, maps, charts, and pictures to student panels.

All viewing periods were proctored by the discussion leader or a graduate assistant.

Study Objectives

1. A primary concern in this experiment was the attitudinal response of students enrolled in a televised course. Many people have expressed specific fears or reservations about educational television. This experiment was designed primarily to test whether certain of these fears were, at the outset, shared by School of Commerce students, and whether, at the end of the course, the students felt these fears were justified.

2. Although the specific practices of educational television vary from university to university, it is perhaps its *sine qua non* that most students are divorced from contact with the lecturer. Even when provision is made for discussion sections, the opportunity to question the lecturer himself exists only in the one or two sections that he may personally lead. We were interested in discovering if the success of a course is related to whether or not the lecturer is also the discussion leader. More specifically, one goal of this experiment was to discover whether separation from the lecturer affects student attitudes and learning.[2]

3. If televised instruction is to be successfully used, we must know faculty as well as student reactions to experiences with educational television. One objective of the over-all New York University study was to increase our knowledge of faculty reactions. This course, staffed by five instructors and one major lecturer, provided us with six sources of such reaction.[3]

4. Since history, social science, and sociology courses have been successfully taught via television, we assumed that this course could also be

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[2] Effect on student attitudes will be discussed here. For effect on learning, *see* Chapter 4, page 56.

[3] Faculty responses are described in Chapter 4, pages 61–64.

successfully taught via television. The focus of attention was rather on attitudes of students enrolled in a televised course. However, one control (conventional) class was included in the experiment to test this assumption of television capabilities.

Instruments of Measurement

Measures of Attitude

The same measures of student attitude were used in all the New York University courses.[4]

Measures of Achievement

The final grades earned by the students constituted the single measure of achievement.

The Findings

Attitudes Toward Educational Television

1. "IMPERSONAL" VERSUS "VIVID"

A very commonly voiced objection to televised instruction is that "It is too impersonal." On the other hand, television's proponents have not infrequently said that it is perhaps more personal than conventional instruction in that it brings the instructor closer to the student and makes the content more vivid. History of Civilization students, both at the beginning and end of the semester, tended to adhere more to the latter school of thought. As shown in Table 1, they did not particularly expect televised instruction to be more impersonal, and, on the whole, they did not find it so. They did think television would bring the instructor closer and make the content more vivid, and, at the end of the course, roughly half the students (53 per cent) checked "It brings the instructor close and makes the subject more vivid."

It is particularly to be noted that a tenth of the students (11 per cent) felt at the end of the course that "It is not much different from ordinary instruction." At the outset, only 4 per cent had expected to find no real difference between televised and conventional instruction.

It is significant that the two classes in which students least often found televised instruction "impersonal" and most often felt it "more vivid" were taught by instructors other than the television lecturer. Clearly, a televised lecture can "bring the instructor close" even when the students have no personal contact with the television lecturer.

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[4] For a description of the questionnaire, *see* Chapter 1, page 13.

TABLE 1

"How Do You Feel About Instruction Involving a Television Presentation Followed by Class Discussion in Relatively Small Groups?"

Response	*% Pre-course*	*% Post-course*
It is too impersonal	5	11
Brings instructor close and makes the subject more vivid	51	53
It is not much different from ordinary instruction	4	11
I have mixed feelings	33	23
No answer	7	2
(N)	(135)	(126)

2. LECTURER-STUDENT SEPARATION

Many educators and laymen have expressed the fear that a lecturer who could neither see nor hear his students would have great difficulty in gauging the proper level for his lectures.

Although the students in this experiment had had experience only with classes where teacher and students were face to face, less than a fourth (22 per cent), at the beginning of the course, felt that the lecturer's physical separation from the class would create a communication problem for the teacher (*see* Table 2). On the other hand, two fifths were quite optimistic, feeling that experienced teachers would not find it a problem. Roughly a third assumed the philosophical view that some face-to-face lecturers, despite the presence of the class, did not gauge the level of the class properly, and that whether the correct estimate was made depended on the instructor rather than on the medium of instruction.

TABLE 2

"How Do (Would) You Feel About the Possibility That the Television Lecturer May Not Know Whether His Presentation Is Too Difficult or Too Easy for the Audience?"

Response	*% Pre-test*
No problem; instructors assigned to TV lectures would be sufficiently experienced	40
All depends on lecturer; many face-to-face lecturers do not know about the difficulty of their presentation	33
It would be a problem; every group is different and instructor must be able to see his audience to know	22
No opinion	4
No answer	1
(N)	(135)

In short, the students on the whole were not worried that their absence might make it difficult for the instructor to lecture on a level correct for the class. Their lack of concern was apparently justified: at the end of the course, two thirds (64 per cent) said the lectures were "just right," while only 11 per cent found the lectures either too hard or too easy (*see* Table 3).

TABLE 3

"Because the Television Instructor Cannot See His Audience, His Presentation May Be Too Easy or Too Difficult. How Do You Feel About This?"

Response	*% Post-test*
Presentations generally just about right	64
Presentations were generally too simple	2
Presentations were generally too difficult	9
Lecturer might have done better or poorer in person—no clear-cut opinion	23
No answer	2
(N)	(126)

In all but two of the six television sections, 64 per cent or more of the students found the lectures "just right"; in only one class did less than half check "just right." In no class did more than 17 per cent find the presentations either "too simple" or "too difficult."

Thus, rather than worrying about television's rendering the lecturer unable to guess the proper approach level, students tended to place their faith in the experience and competency of the lecturer. And, from their responses at the end of the semester, we see their faith was justified. The students found that an experienced teacher can lecture effectively even when he is unable to see or hear the class.

3. STUDENT QUESTIONS

One very frequently voiced criticism of televised instruction is that it does not allow students to interrupt, and thus prevents their asking questions as they come to mind. Forty per cent of the School of Commerce students feared this aspect of television at the beginning of the course, while 44 per cent felt that the lecturer's freedom from interruption was good rather than bad (*see* Table 4). Experience with the televised course, however, led to some shift in attitude. At the end of the course, almost half the students (49 per cent) felt that being unable to ask questions when they arose was a liability,[5] while 38 per cent felt this to be an asset.[6] Thirteen per cent did not feel strongly one way or the other.

TABLE 4

"How Do You Feel About Not Being Able to Raise Questions During the Television Presentation?"

Response	*% Pre-course*	*% Post-course*
It was good*	44	38
It was not good†	40	49
Do not feel strongly about it	8	13
No answer	8	0
(N)	(135)	(126)

* *See* footnote 6.
† *See* footnote 5.

These data appear to indicate that a notable proportion of the students agree with critics of educational television. Almost half ended the course feeling that the inability to ask questions as they arose was bad. However, it is interesting to speculate on how much of this objection would have disappeared if students had had more time to ask questions than the ten minutes actually allowed in each follow-up period.

Perhaps the most interesting finding here is that, despite the very limited amount of time devoted to answering students' questions, over a third of the students fully endorsed this method of teaching and 13 per cent found that they did not really care.

4. OVER-ALL RESPONSE

The students' over-all response to having had a televised course is perhaps the most significant index to the importance he attaches to the inability to interrupt to ask questions, the physical separation of class from instructor, and the possible impersonality or vividness of television.

At the beginning and the end of the semester students were asked how they felt about being enrolled in a course in which part of the instruction was televised. At the outset, three fourths (77 per cent) "liked" the idea (*see* Table 5). They were less enthusiastic at the end of the semester, when slightly less than half (48 per cent) "liked it." However, relatively few disliked the experience (13 per cent), while over a third checked "mixed feelings." Although there was some class-to-class variation, the per cent that indicated they were pleased decreased and the "mixed feelings" group increased in all classes.

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[5] The checked statement: "It was not good; I often became confused about some point in the presentation and failed to follow the part following."

[6] The checked statement: "It was good; straightforward and logical presentation could be made without student interruption."

TABLE 5

Reaction to Having Been Enrolled in a Televised Course

Response	*% Pre-course*	*% Post-course*	*% Post minus Class "D"**
Have liked it	77	48	54
Have not liked it	7	13	9
Mixed feelings	16	39	37
(N)	(135)	(126)	(107)

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* *See* page 46.

In short, the students were more enthusiastic about televised instruction before they took the course than they were afterwards. Nonetheless, they did not dislike the experience. On the contrary, almost half liked it, while over a third had mixed feelings.

Another measure of whether or not students like educational television is their willingness to take further televised courses. When given a theoretical choice between a televised or large in-person lecture, both with the same instructor, students who had completed History of Civilization split half and half (*see* Table 6).

TABLE 6

Preference: Television Section or Large Conventional Lecture Class*

Response	*% Post-course†*	*% Total minus Class "D"‡*
TV section	49	55
In-person lecture	50	44
No answer	1	1
(N)	(126)	(107)

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* "Next summer you might have the option of enrolling in either a television section or a large in-person lecture section of a particular course. If both sections are taught by the same instructor (whom you like) and are given at hours that fit in with your schedule, which section would you choose?"

† This question was asked only at the end of the semester.

‡ Cf. page 46.

When the choice shifted to "a television section taught by an instructor of known excellence" as opposed to a conventional section where the student "had to take your chances on which instructor you would be assigned to," the students clearly indicated that they felt that the instructor was more important than the medium: 74 per cent chose the television section.

TABLE 7

Preference: TV Section with Instructor of Known Competence versus Conventional Section with Unknown Instructor

Response	*% Post-course**	*% Total minus Class "D"* †
TV instructor	74	81
Take chances on instructor in conventional section	25	18
No answer	1	1
(N)	(126)	(107)

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* This question was asked only at the end of the course.
† Cf. below.

At the end of the questionnaire, students were offered a chance to express their general reactions to educational television. They were neither overwhelmingly for or against further televised courses, but, on the whole, they were more pro than not (*see* Table 8). A third checked "I hope I can take more televised classes." Almost a third checked "like televised lectures as well as large in-person lectures" and a fifth preferred television to conventional classes. Almost a third hoped to take "at least one televised class and one large lecture class each semester."

In contrast, only 10 per cent "hoped never to have to take another televised class," while a quarter slightly preferred and a tenth strongly preferred conventional to televised classes. (Those who slightly preferred conventional classes "would not mind taking a few televised classes.")

Ten per cent of the students indicated that they did not really care whether a course was televised or presented conventionally.

5. VARIATION BY INSTRUCTOR

There were six discussion sections, all of which viewed the same lectures, did the same assignments, and took the same tests. Each group, however, had a different instructor.

On the whole, student attitude did not greatly vary by class. However, the class of Instructor "D" often varied from the others, consistently in the direction of anti-television attitudes. His students "liked" having been enrolled in this televised course significantly less often than did the others (*see* Table 5). They significantly less often checked "TV brings the instructor close and makes the subject more vivid." They significantly less often selected a television class over a conventional class (*see* Tables 6 and 7). And in their over-all reactions to educational television (*see*

Table 8) they again significantly differed from the rest of the students, less often checking responses favorable to televised instruction.

TABLE 8

Over-all Reactions to Educational Television*

Response	*% Post-course**	*% Total minus Class "D"*†
Like TV as well as large conventional lectures	29	31
Prefer several TV to several large lecture courses	21	23
Like to have at least one TV and one conventional lecture course each semester	29	34
Hope I can take more TV classes	33	37
Somewhat prefer large lecture; would not mind a few TV classes	25	23
Strongly prefer large lecture classes	12	7
Hope never to take another TV class	10	5
Do not really care one way or the other about taking a TV course or a large lecture course	10	8
No answer	2	3
(Total number of responses)	(217)	(182)
(N)	(126)	(107)

* This adds to more than 100 per cent since students were told to "check those statements that most accurately reflect your feelings."

† *See* section immediately following.

After the conclusion of the course, the six instructors were informally interviewed. A few confessed that at the outset they had not been overly sanguine, but five ended the semester strongly impressed with the possibilities of televised instruction. The single deviant was Instructor "D" who described several areas of dissatisfaction. He expressed no strong antagonism toward televised instruction but clearly indicated that, rather than sharing the excitement of his colleagues, he had many reservations.

Since the instructor was the only known variable among the six sections, it may well be that the marked lack of enthusiasm exhibited by Instructor "D's" class was at least in part a reflection of their reaction to his own lack of enthusiasm.

Summary: Two earlier chapters of this report have shown that student achievement was strongly influenced by the discussion-section instructor.[7]

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[7] *See* Chapter 1, pages 21–26, and Chapter 2, page 36.

It is not unlikely that student attitudes toward television were also influenced by the discussion-section instructor. It would appear that the attitudinal response of Class "D" is at least in part a product of Instructor "D."

6. PERSONAL CONTACT WITH LECTURER

In most televised courses the student has no personal contact with the lecturer. In History of Civilization, one discussion section was led by the television lecturer, one class was led by an instructor who appeared several times on telecasts, and four classes had no personal contact with the television lecturers.

The lack of contact with the lecturers did not preclude nor apparently did it diminish favorable attitudes toward televised instruction. Indeed, the class most consistently (and enthusiastically) favorable to television was that of Instructor "B," who never appeared on a telecast.[8]

In contrast, the class of the major television instructor, Instructor "F," did not often differ significantly from the total group. The students, however, did object significantly more often to the fact that they were unable to interrupt to ask questions. This is interesting and seems somehow highly suggestive, yet it is not easily explicable. They, of all the students, were the only ones with easy access to the lecturer.

Class "F" also significantly more often than the total group preferred a conventional to a televised lecture class (both with same instructor). Having had the opportunity to see Instructor "F" on television and in person, they apparently preferred him in the face-to-face situation.

Summary: Clearly, students do not need personal student-teacher contact with the television lecturer in order to feel favorably disposed toward or, indeed, enthusiastic about educational television.

Achievement: Televised Instruction versus Conventional-Class Instruction

Since the focus of experimental interest for this course was primarily on attitudes, there was no measure of achievement other than class grades. The final grades in both the televised and conventional sections described a curve normal to the course. For both media of instruction, the majority of students received B's and C's (*see* Table 9). The average grade was somewhat higher in the conventional class than among the televised classes, but television students received a higher percentage of A's.

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[8] E.g., 71 per cent of Class "B" preferred televised instruction to a conventional class (total group, 49 per cent); 90 per cent preferred televised instruction with a known instructor to a conventional class with an unknown instructor (total group, 74 per cent); 57 per cent hoped to take more televised courses (total group, 33 per cent); 62 per cent felt television "brought the instructor close and made the content more vivid" (total group, 53 per cent).

TABLE 9

Final Grades of Total Group and Classes of Instructor "E" by Medium of Instruction

Grade	*% TV*	*Instructor "E" Conventional*	*Instructor "E" TV*
A	10	7	12
B	17	33	25
C	40	37	21
D	17	23	13
F	5	0	0
Absent	9	0	25
Incomplete	2	0	4
(N)	(140)	(57)	(24)

Summary: Using grade distribution as a measure of success, History of Civilization was successfully taught via television.

Summary and Conclusions

1. Educational television is new and in certain ways differs markedly from conventional instruction. We do not yet know which of the differences are meaningfully related to learning and which are unimportant. Nor do we yet know which of the differences are considered important by the student. A frequent objection to educational television is "It's too impersonal." This seems a logical criticism. Yet History of Civilization students did not often voice it either at the beginning or the end of the term. On the contrary, over half felt that educational television "brings the instructor close and makes the subject more vivid."

2. Most experienced teachers pace their lectures in response to class reactions. The frown and the blank stare are slowdown signals, while the clear gaze and busy right arm are green lights. The pacing or level, then, derives largely from student reaction. It is thus not surprising that many people express the fear that an instructor physically separated from his signal givers may be unable properly to pace his lectures. Students, who after all are most experienced with lecturers and teachers, were less worried about this than are educators and laymen. At the beginning of the course, about a fifth of the students thought the teacher-class separation might present a communication problem, but 40 per cent were certain that experienced teachers could surmount that problem. A third felt that the problem related more to the individual teacher than to the medium.

At the end of the semester, two thirds of the students said the lectures were "just right," while only 11 per cent found them either too easy or too hard. An experienced teacher apparently can adequately gauge the proper pace and level for his lectures even when he can neither see nor hear his students.

3. Long before television was born, teachers and students both argued the merits of the lecture system of teaching. Proponents felt that the lecture permitted a logical and orderly presentation of material. Critics objected to the inability to interrupt at will. The fact that the lecturer is on a television screen rather than a class platform in no way alters the basic situation.

Roughly half the School of Commerce students objected to the built-in lecture aspect of television; a third approved of it. Both groups advanced the traditional reasons.

Since the students had at the most ten minutes to request clarification of or question each lecture, it is striking that a third nonetheless approved the lecture system while an additional 13 per cent did not feel strongly one way or the other. Clearly, whether presented traditionally or in television, the uninterrupted lecture pleases some and displeases others.

4. History of Civilization students liked educational television more than they disliked it. A third hoped to take further televised courses, and 29 per cent hoped to take at least one televised course each semester. Only 10 per cent hoped never to enroll in another television course.

The group was fairly evenly split on a choice between a televised course versus a conventional course with the same instructor. But when the question presented the conventional-class instructor as an unknown quantity and the television instructor as one of known excellence, the majority of students rated the instructor as more important than the medium. They selected television with the known instructor.

5. While, in general, attitude did not vary significantly by class, one class often differed significantly from the total group, and consistently in the direction of anti-television attitudes. Since the only identified variable was the instructor, it appears likely that student attitudes toward educational television are in large part a product of the discussion-section instructor.

6. Personal contact between student and lecturer is apparently not a necessary prerequisite to the development and maintenance of positive attitudes toward educational television. Indeed, the most pro-television class was led by a staff member who appeared on none of the telecasts, while the class of the main lecturer did not often differ significantly from the total group.

7. When achievement was measured by final grades, History of Civilization was shown to be taught through televised lectures followed by small conventional-class meetings as successfully as it was by conventional methods.

CHAPTER 4

CROSS–COURSE FINDINGS

While many of the findings of New York University's studies in television instruction derive from one particular experiment, certain additional facts emerge when all the separate experiments are combined. These cross-course findings deal with student reactions to televised instruction, the relationship of overt attention to student achievement, the necessity of a lecturer-led discussion group, faculty reactions to televised instruction, the relationship between production aids and course interest, and the relationship between production aids and attitudes toward televised instruction. Each of these topics is discussed in this chapter.

Student Reactions to Televised Instruction[1]

1. *"Impersonal" versus "Vivid"*

The supposed impersonality of televised instruction is often advanced as an argument against the use of television in formal education. On the basis of opinions expressed by New York University students, however, we suggest that this impersonality may be more hypothetical than real for the majority of students. Almost half our students felt that "it brings the instructor close and makes the subject matter more vivid," and an additional 16 per cent found it not particularly different from ordinary instruction. Only a fifth (21 per cent) felt television was "too impersonal" (*see* Table 1). In no course did a majority check "too impersonal," while in three courses over half checked "it brings the instructor close and makes the subject matter more vivid."

The range of course-to-course variation was wide, and this too indicates that television is not necessarily impersonal. The per cent that checked "too impersonal" varied from 4 per cent in Man's Cultural Heritage, second semester, to 40 per cent in English R–2. The per cent who found television "more vivid" varied from 15 per cent in English R–1 to 60 per cent in Man's Cultural Heritage, first semester. Clearly, students may see televised instruction either as "too impersonal" or "more vivid," and it would appear that the determining factor is not television itself.

2. *The Adequacy of the Lecturer*

Both professional educators and interested laymen have expressed the fear that a lecturer addressing unseen and unheard students would be

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[1] At the outset of each course and at its end, students completed an attitude questionnaire.

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unable to adjust the lecture to his students. None of the main television lecturers shared this concern. Although all missed student contact while lecturing, none thought the lack of contact made it impossible to lecture at the appropriate level. And the students, on the whole, confirmed their faith (*see* Table 2).

In three courses, over two thirds of the students found the lectures "just about right," and in no course did fewer than 41 per cent check "just about right." In contrast, in no course did more than 20 per cent find the lectures either too difficult or too easy.

TABLE 1

"How Do You Feel About Instruction Involving a TV Presentation Followed by Small-Group Discussion?"

Response	*English R-1*	*English R-2*	*Man's Cultural Heritage Term I*	*Man's Cultural Heritage Term II*	*History of Civilization*	*Total*
Too impersonal	35%	40%	12%	4%	11%	21%
Brings instructor close, makes subject more vivid	15	25	60	59	53	42
Not very different from ordinary instruction	18	17	14	23	11	16
Mixed feelings	32	18	14	13	23	20
No answer	0	0	0	1	2	0.5
(N)	(116)	(108)	(133)	(77)	(126)	(560)

At the beginning of the semester in all courses, students expected that the lecturer's separation from his audience would create a communication problem for the lecturer. In all courses, however, the students were pleasantly surprised. Clearly, an experienced teacher, teaching a course he has taught before, can lecture successfully without any direct contact with his students during the lecture.

3. *The Uninterrupted Lecture*

Long before the emergence of television, both students and teachers argued the merits of the lecture system. Critics objected to the forced inhibition of questions. Proponents rejoiced in the uninterrupted, orderly flow of material. As shown in Table 3, the transferring of the lecturer from the platform to the television screen in no way alters the basic arguments or resolves the disagreements. Almost half the students disliked the uninterrupted lecture, while 38 per cent favored the lack of interruptions.

TABLE 2

"Because the TV Instructor Cannot See His Audience, His Presentation May Be Too Easy or Too Difficult. How Do You Feel About This?"

Response	*English R-1*	*English R-2*	*Man's Cultural Heritage Term I*	*Man's Cultural Heritage Term II*	*History of Civilization*
Presentations were just about on right level	41%	44%	71%	64%	64%
Presentations were generally too simple or easy	10	5	2	13	2
Presentations were generally too complex or difficult	10	15	3	1	9
Lecturers might have been better or poorer in person	39	34	24	18	23
No answer	0	2	0	4	2

TABLE 3

"How Do You Feel About Not Being Able to Raise Questions During the TV Presentation?"

Response	*English R-1*		*English R-2*		*Man's Cultural Heritage Term 1*		*Man's Cultural Heritage Term 2*		*History of Civilization*	
	Pre	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*
It was good*	17%	19%	12%	19%	57%	50%	45%	65%	44%	38%
It was not good†	75	58	82	62	39	37	46	18	40	49
Do not feel strongly either way	8	23	6	18	4	13	8	16	8	13
No answer	0	0	0	1	0	0	1	1	8	0

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[*] "It was good because a straightforward and logical presentation could be made without student interruption."

[†] "It was not good because I often became confused about some point in the presentation and failed to follow the part following."

While student response varied tremendously by course, a comparison of attitudes at the beginning and at the end of the courses yields an interesting pattern. The percentage of those who disapproved of the uninterrupted lecture decreased in all but one course, while the percentage who approved increased in three of the five courses. Equally interesting, perhaps, is the fact that the percentage who did not feel strongly one way or the other increased in all courses.

Television has here failed, as has conventional instruction before it, to settle the questions-versus-no-questions controversy. It is, nonetheless, interesting to find that students disliked it far less than they had expected.

Overt Attention and Student Achievement

While it is obvious that a student who pays no attention in class cannot benefit by class lectures and discussion, it is also well known that students can seem inattentive and still show they have learned the material presented in class. It would appear then that there are two kinds of attentiveness: one is overt and thus observable and the other is covert and can be measured only by the learning evidenced in students' tests or class recitation. Overt attention during the televised lectures was observed and recorded in English R–2, Man's Cultural Heritage (both semesters), and French 7R.

At the beginning of each semester, students sat quietly, eyes fixed on the television screen. In some classes they were so attentive, so silent, so immersed that the faculty felt the millennium had arrived, and were, in some cases, made uneasy by its unfamiliarity. The honeymoon period for most students, however, was relatively short-lived. By the end of the semester, student comment was again more or less audible, papers had resumed rustling, and assorted foods were being consumed. In a few classes, overt attention seemed to the faculty to be less than that in conventional lectures. The attention situation was viewed with relief by some faculty members and with alarm by others.

Overt Attention Measured

Overt attention was observed and recorded periodically, beginning with the fourth week of the semester in four courses. The observers, senior psychology majors, were supplied with criteria for judging overt-attention level and with seating charts. (A training period had tested the validity of the criteria and the reliability of the observers.) Students were placed in high, middle, or low attention groups by the observers.

The Findings

The achievement of students was compared by attention level for each course. No significant differences among the attention groups was found in any of the courses. In no course did the differences even approach significance (*see* Tables 4, 5, and 6).

TABLE 4

English R–2: Achievement by Attention Level

Attention Level	*Pre-test Scores ($\overline{X}$)*	*Post-adjusted Scores ($\overline{X}$)**
High	44.0	47.4
Low	48.5	47.7

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* For meaning of post-adjusted score, *see* page 18.

TABLE 5

Man's Cultural Heritage: Achievement by Attention Level (Both Semesters)

	Term 1		*Term 2*	
Attention Level	*Pre-Score ($\overline{X}$)*	*Post-adjusted Score ($\overline{X}$)*	*Pre-Score ($\overline{X}$)*	*Post-adjusted Score ($\overline{X}$)*
High	56.4	76.2	62.4	75.5
Middle	57.8	78.6		
Low	60.7	78.6	63.4	76.3

TABLE 6

French Reading: Achievement by Attention Level (First Semester)

Attention Level	*Entering French Grade Average ($\overline{X}$)*	*Post-adjusted Score ($\overline{X}$)*
High	1.9	52.3
Middle	2.2	54.6
Low	2.6	49.7

In no course was overt attention found to be related to achievement. It is interesting to note, however, that in all courses the entering knowledge level of the low overt attention group was higher than that of the high overt attention level group. This suggests that perhaps the student who most needs completely to attend the lecture does so, while those who can divide their attention and still learn tend to be less overtly attentive.

The Lecturer-Led Discussion Group

Most institutions using televised instruction do so in an attempt to increase the number of students taught by one instructor. If small discussion sections follow the lecture, either the television lecturer cannot lead all discussion groups or the number of students he teaches cannot be increased by television. It is, therefore, not unimportant to know whether it is indeed essential that the lecturer lead one or more discussion groups. Is a discussion group led by a nonlecturer in any way penalized by the lack of contact with the lecturer? The New York University data lead us to conclude that a televised lecture followed by small-group discussions can be successful when the lecturer does not lead a discussion section, provided that the lecturer has given the course before and provided that both lecturer and discussion-section leaders are competent.

Student Attitudes

In History of Civilization there were six discussion sections. One was led by the major lecturer, one instructor appeared on telecasts several times, and the remaining four instructors gave no televised lectures. The class most enthusiastically and consistently favorable to televised instruction had, as discussion leader, a man who gave no televised lectures.[2] In contrast, the class of the major television instructor did not often differ significantly from the total group.[3] From these data, we concluded, "students do not need personal student-teacher contact with the television lecturer in order to feel favorably disposed toward or, indeed, enthusiastic about televised instruction."

Student Learning

There were four discussion sections in Man's Cultural Heritage each semester, two of which were led by instructors who made no television appearances. Both semesters there was no significant difference between the achievement of the major lecturer's class and the classes of the two instructors who did not appear on television. Indeed, the instructor whose classes most consistently outperformed the others gave no television lectures.[4] From these data we concluded that Man's Cultural Heritage can be successfully taught via televised lectures and traditional (in-person) discussion sections even when the discussion section is not led by a television lecturer.

Faculty Reaction

In both halves of the English course (R–1 and R–2), the major lecturer led no discussion. He did not feel that this in any way decreased his efficiency as a lecturer. In both Man's Cultural Heritage and History of

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[2] *See* Chapter 4.
[3] *Ibid.*
[4] *See* Chapter 3.

Civilization, the major lecturer led one discussion group. Both lecturers felt that the contact with the students did not really help them lecture more efficiently.

> *Lecturer "A":* "I feel that the combination of television teaching and discussion was not profitable for me or for the class. It did not help me appraise the television lectures as much as I thought it would. I would, following the telecast, want to make the rounds of the discussion classes occasionally."
>
> *Lecturer "B":* "I did not feel I gained much, for my lectures on television, by teaching the discussion section. I think I knew pretty well what they did get and what they would question. I feel the courses would be better if the television lecturer had no discussion section. The students would feel more free perhaps to argue and question. They seem to respect the television lecturer so much."

Further, both lecturers felt that having to lead a discussion section after the lecture was actually undesirable.

> *Lecturer "A":* "I am not happy about having to handle a discussion period after the transmission. . . . There is too much tension in having to do television and then getting over to the discussion class: there is a problem of adjustment between the two teaching methods."
>
> *Lecturer "B":* "I dislike having a discussion section right after the lecture. There is tension before and during the telecast. When it is over, there is a feeling of release and a feeling of a job done. Then, if you have a discussion section, you have to try to wind yourself up again, switch your techniques, change your orientation, and start all over again. It is not pleasant, and it does not help your effectiveness as a discussion leader. . . . It takes time to get over to the class. During this time the students get bored or impatient. They begin to talk of other things, and you have lost the first enthusiastic flow of questions."

Summary

The lecturers did not feel they profited by their discussion sections. They felt, indeed, that they would have preferred to lead no discussion section after the lectures. The lack of in-person contact with the lecturer in no way precluded nor did it diminish favorable attitude toward the course, and televised education in general. The lack of in-person contact with the lecturer did not apparently affect learning. Thus, we conclude that it is not necessary to the success of a course for the lecturer also to lead a discussion class, provided that the lecturer has previously offered the course and provided that both lecturer and discussion-section leaders are competent.

The Relationship of Production Aids to Course Interest and Attitudes Toward Televised Instruction

The School of Education presented its televised course, Man's Cultural Heritage, twice during 1956–1957 (*see* page 28). The first semester the television screen presented only what a student in a conventional class would see, viz., the teacher and the blackboards. The second semester the lectures and lecturers remained unchanged, but the fullest possible use was made of the visual and audio potentialities of the medium. An attitude questionnaire was administered at the beginning and again at the end of each term. In addition, students in the production version (second semester), at the end of the semester, completed a questionnaire designed to elicit their reactions to the production aids used during the semester.

Attitude Toward Televised Instruction

Students in the production version of the course, Man's Cultural Heritage, were more favorable to televised instruction than were nonproduction course students (*see* Table 1). However, it is important to note that the introduction of production aids into a televised course does not necessarily elicit favorable attitudes toward televised instruction. A similar number and variety of production devices were used both in the Washington Square College televised offering, College Composition, and in the School of Commerce course, History of Civilization, yet attitudes toward televised instruction varied widely by course (*see* Table 1). Further, the fact that students in the nonproduction semester of Man's Cultural Heritage consistently evinced more favorable attitudes than did students in some other production courses again indicates that the use of production aids does not inexorably lead to favorable attitudes toward television.

As evidenced in Table 7, students in Man's Cultural Heritage, second semester, exhibited the most favorable attitudes toward televised instruction. However, it is at least equally significant that students in the nonproduction version of Man's Cultural Heritage, first semester, were about as favorable in their attitudes as were students in History of Civilization, and were more favorable than College Composition students, although the latter courses used production devices.

This same pattern again emerged (Tables 8 and 9) when students were asked to make hypothetical choices between enrolling in a televised or conventional lecture course.

Summary

The data thus indicate that:

1. Students may develop strongly favorable attitudes toward televised instruction even when the screen discloses merely a lecturer and a blackboard.

2. For a given course, students somewhat more often develop such attitudes, and the attitudes are more strongly favorable when the course does use production techniques.

3. The use of visual and audio aids does not inexorably elicit favorable attitudes toward televised instruction.[5]

TABLE 7

"Over All, How Do You Feel About Taking a Course Taught on Television?"*

Response	*English*		*Man's Cultural Heritage*		*History of Civilization*
	R–1	*R–2*	*Term 1*†	*Term 2*	
Just as soon take TV courses as large lecture courses	18%	18%	41%	52%	29%
Rather take several TV courses than several large lecture courses	10	7	32	53	21
Hope I can take more TV courses	8	9	27	61	33
Like each term to have at least one of each (TV and large lecture)	16	12	20	32	29
Somewhat rather prefer large lecture class; wouldn't mind taking a few TV courses	32	26	38	6	25
Much prefer large lecture classes to TV	14	30	12	3	12
Hope I never have to take another TV class	26	33	5	1	10
Don't really care whether it's TV or a large lecture class	12	11	12	4	10
No answer	0	0	0	0	2

* Responses add to more than 100 per cent since students were told to check as many statements as they felt represented their feelings.

† Man's Cultural Heritage was given, the first semester, using no production aids. All other courses used production aids.

Course Interest

Almost nine tenths of the students in Man's Cultural Heritage, second semester, felt that production aids "definitely made the course more interesting." It would appear, then, that the use of production aids made the course more interesting. This is, however, in no way equivalent to saying that production devices necessarily make a course interesting.

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[5] One may well ask how important it is that students be "very favorably" as opposed to just "favorably" disposed toward televised instruction. What will the increased favorability yield? Does it halo and influence other attitudes more clearly revered by educators? Are attitudes toward homework, attitudes toward learning and education, general attitude toward school affected? These questions are pertinent. Our study can raise these questions but cannot answer them.

We have no direct measure of student interest in the various courses. However, if we assume that interest is important in helping to determine whether or not a course is liked, we then have an indirect or partial measure of interest (*see* Table 10).

TABLE 8

Preference: TV Section or Large Conventional Lecture Class*

	English		*Man's Cultural Heritage*		*History of*
Response	*R–1*	*R–2*	*Term 1*	*Term 2*	*Civilization*
TV section	31%	20%	51%	78%	49%
In-person lecture	69	80	49	22	50
No answer	0	0	0	0	1

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* "Next semester you might have the option of enrolling in either a television section or a large in-person lecture section of a particular course. If both sections are taught by the same instructor (whom you like) and are given at hours that fit in with your schedule, which section would you choose?"

TABLE 9

Preference: TV Section with Instructor of Known Competence versus Conventional Section with Unknown Instructor

	English		*Man's Cultural Heritage*		*History of*
Response	*R–1*	*R–2*	*Term 1*	*Term 2*	*Civilization*
TV instructor	62%	49%	86%	94%	74%
Take chance on instructor in conventional section	38	51	14	6	25
No answer	0	0	0	0	1

TABLE 10

Reaction to Having Participated in This Television Course

	English		*Man's Cultural Heritage*		*History of*
Response	*R–1*	*R–2*	*Term 1**	*Term 2*	*Civilization*
On the whole, have liked it	14%	17%	59%	90%	48%
On the whole, have not liked it	41	51	12	3	13
Mixed feelings	45	32	29	7	39

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* This was the only course that did not use production aids.

Students in the production semester of Man's Cultural Heritage more often liked their televised course than did students of the "bare-bones" version. However, these nonproduction students liked the course far more than did students in the English course and somewhat more than did students in History of Civilization, and these courses used a variety of production aids.

The very disparate reactions that students had to the various televised courses indicate that the use of production devices offers no guarantee of student interest.[6]

Summary

While the addition of production devices to a specific televised course increases interest and heightens the favorability of student attitudes, the evidence indicates that a high level of interest and favorability do not inevitably accompany the introduction of production aids.

Faculty Reactions to Televised Instruction

All the lecturers and most of the discussion-section leaders participating in the 1956–1957 New York University televised instruction program were informally interviewed by the producer of all telecasts. The interviews were unstructured, and most took place at the end of the spring term, 1957.

The faculty commented widely on many facets of their television experience. Some reactions were wholly idiosyncratic, but three topics were raised by almost all who gave televised lectures; viz., the tensions engendered by television, the work load, and the satisfactions and dissatisfactions deriving from teaching in television.

1. *Tension*

All but two of the faculty who appeared on at least one telecast at some point in their interview mentioned tension in relation to their televised lectures. Some felt tense before and during each telecast; for some the tension lessened considerably after many television appearances. Several cited the distracting and new, hence unfamiliar, studio environment as a source of tension. Several felt that the presence of unseen faculty and guest observers generated tension. All early developed a calm pre-telecast demeanor, although all but two said they were to some degree nervous and tense.

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[6] This suggests various implicative questions for which there are as yet no answers. Production aids can make an interesting course more interesting. Can they also make a less interesting course more interesting? Can they move a course from the "traditionally uninteresting" to the "interesting" category? And, although educators agree that interest correlates with learning, at what level is the point of diminishing returns reached? Since production aids are time-consuming and costly, should they be saved for those courses that students typically classify as "less interesting" or "uninteresting"?

Major lecturer: "I was tense all the time. It's not like the classroom. There you may be tense perhaps for the first meeting of the class, but with television I was tense all the time. The camera and the movements of the crew—all this created tension. It was an unfamiliar setting . . . preparation took so long, and planning, and practicing with using production aids—and that too all created tension. I never felt I was wholly ready to go before the cameras."

Guest lecturer: "You are distracted, nervous, tense, hampered by the noise in the studio, conversations of the workers. You are bothered by the inability to make swift movements, by the lights, the moving cameras and equipment."

Guest lecturer: "There is a tension and a pressure in being on television for the television teacher. . . . The occasional guest teacher may have a special tension because he is being judged, consciously or not, as a teacher on only a capsule version of his total effectiveness, which is normally spread out over a whole year. . . . You have to keep on talking on television. You can't stop to think something through."

Major lecturer: "I feel a general tenseness in myself about the project and wonder if there is a tension intrinsic in the medium of television itself. . . . I felt nervous and insecure the first semester. Everything was new—the lights, the words (they killed scoops and faded people). The running conversations of crew members during telecasts were distracting and made me feel tense. I wondered what was wrong. . . . During the second semester the tension decreased considerably. But I was still somewhat tense, and I was still uncomfortable when I knew others (faculty and visitors) were watching."

Discussion leader not on television: "I wouldn't like to be on television. I don't like straight lectures; I like class participation. And I'd be nervous. I'd worry about who was watching. I know definitely that I'd prepare and organize lectures more than normally if I were on television."

Major lecturer: "The fact that I was being watched by unknown people (both students and guests) intensified the tension of the teaching experience."

2. *Work Load*

That televised instruction demands more time and preparation than conventional instruction has been discovered by almost all who have worked with television. The New York University faculty was no exception. All but one said that televised instruction required more work of the instructor.

Most pointed out that they spent more time organizing and preparing lectures. The faculty, however, did not and perhaps could not specify why the insertion of a television camera and screen between lecturer and student required new and better organization of lectures. It would appear that, in some way, the medium pressures the instructor critically to re-examine his work. The probable presence of faculty and visitors perhaps in part explains this.[7] But the pressure seemed to derive from other sources as well. Perhaps it is similar to the compulsion most people have to straighten a tie or comb their hair before a picture is taken. Perhaps the fact that one is being recorded and transmitted by a machine makes one feel one must be not merely as good as usual, but rather better than usual.

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[7] A student, at the beginning of the semester, commented on this, as he explained why he thought the lectures would be good. "The lecture always depends on the caliber of the lecturer. The lecturers on television may be inspired to prepare better lectures, perhaps realizing that their audience is more extensive than just students, but also includes other faculty members, and who knows who else."

Guest lecturer: "Television forces teachers to organize their lectures more."

Guest lecturer: "Television forced me to organize my lectures as I had not done before."

Major lecturer: "A television teacher has to work harder . . . the need to visualize affects the thinking and preparation of the lectures, both in terms of visuals and in logical organization."

Major lecturer: "It was a hectic semester. There were so many things I had to do for television. And, of course, I was under tension. I neglected my work at the office. I had to. There was so much to do for television."

Major instructor: "I spent far more time than I usually do in preparing my lectures, and I always have carefully prepared lectures in my nontelevision courses. In addition to the additional basic lecture preparation, one must also spend time creating effective visual aids. And, of course, the meetings with the visuals co-ordinator, the twice-weekly preparing of an outline for the director, the rehearsal, the make-up—all take extra time."

The work load was seemingly also a product of the heightened need to be interesting. Several of the faculty mentioned this, apparently feeling a need over and beyond what they feel in conventional classes.

Guest lecturer: "The television person has to be highly interesting. There are none of the usual distractions; the students' eyes are on the set always. He *has* to be interesting *each time*. Weekly, each lecture is a big production, requiring more preparation on the part of the lecturer. You have to have a rapid, tightly knit, alive presentation. That means work."

3. *Satisfactions—Dissatisfactions*

All the faculty disliked certain aspects of the television experience; all derived some satisfactions from it. Many found it an exciting, challenging, stimulating experience. Most missed the second half of traditional teaching situations: the teacher was there, but the students were not.

Major lecturer: "I think the television course was a success. It was a stimulating experience for me. In some ways I miss it now. I can't use some of the maps and pictures that were so useful. I'd love to be able to use some of my production aids in class regularly."

Major lecturer: "I don't think there is as much personal satisfaction for a teacher of ———— on television as there is in a classroom. First, the television teacher has to work harder. Second, he gets to see practically none of the results. There is little satisfaction because there is no niche as of now for a television teacher in the college set-up. A teacher doesn't feel he is making any progress in his local academic situation even though he may be contributing something to the national picture."

Major lecturer: "I'm not sure I'd want to do television again. It's exciting. But I often had a feeling of futility about the course and a sense of personal futility."

Major lecturer: "I miss the contact and reaction of the students very much. . . ."

Major lecturer: "Television is stimulating and exciting. In certain ways it's fun. . . . I don't like working full time in television. I miss the excitement of the classroom.

Yet there is an ego satisfaction in being on television—in a sense one is a little bit of a star. . . . Ordinary teaching is much more rewarding. If you really like to teach, talking to a camera is in no way as satisfying as talking to and with a class. In fact, I discovered, in the studio while on camera, that I was making a definite effort to teach the cameramen and crew. I was very pleased to see them react to the lecture and even more pleased when they asked me questions after the telecast. In short, I was trying to make them a class substitute."

Guest lecturer: "Being on television didn't really save any class time or enable the instructor to put more material in the course. Rather, television allows more enrichment via techniques and visual and aural aids."

Summary

Almost all the television faculty found their television teaching stimulating but time consuming. It required more preparation and it produced tensions. Almost all mentioned missing the presence of students. All found it to be in some respects a rewarding experience.

APPENDIX

FRENCH READING

WASHINGTON SQUARE COLLEGE OF ARTS AND SCIENCE

French Reading (French 7R) is a one-credit French reading course required of all liberal arts students who have completed their major French courses. Its primary purpose is to help students maintain their reading knowledge of French.

French 7R met once a week for one hour. In the fall semester, there were three traditional sections and two television sections. In the spring there were no traditional sections during the day. The televised presentations lasted roughly 25 minutes; the remainder of the class hour was devoted to class discussion. Associate Professor Max Sorkin was the major lecturer in charge of all televised presentations the first semester. At the outset of the second semester, Professor Robert Clements was in charge of all televised presentations. In the early part of the semester, however, he became ill, and Mr. Norman H. Paul took over his duties for the rest of the semester.

A series of technical misunderstandings and lost packages coupled with problems arising from staff illness prevented us from carrying out the projected research design for French 7R. The only data available are the relationship of overt attention and grades (*see* page 55) and the final grades.

Final Grades

TABLE I

Final Grades by Medium of Instruction

	Term One		*Term Two*
Final Grade	*Television*	*Conventional*	*Television*
A	0%	4%	27%
B	18	30	27
C	53	51	27
D	18	7	0
F	11	4	9
Absent	0	2	9
Incomplete	0	2	0
(N)	(38)	(47)	(11)

TABLE ENGLISH–A

English R–1: End-of-Semester English Cooperative Test Scores and Gain* by Initial Level of Knowledge, for TV and Control Classes

Initial-Knowledge Level	*Pre-test Scores ($\overline{X}$)*	*Post-test Scores ($\overline{X}$)*	*Gain*	*t (Gain)*
Television Classes				
High (N=44)	69.09	70.45	1.36	M–L=1.95
Middle (N=37)	58.43	59.45	1.02	
Low (N=35)	49.89	52.86	2.97	
Conventional Classes				
High (N=36)	67.19	69.97	2.78	H–L=0.27
Middle (N=38)	57.53	60.45	2.92	
Low (N=41)	49.32	52.39	3.07	

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* Gain is here derived by subtracting mean pre-test scores from mean post-test scores.

TABLE ENGLISH–B

English R–2: End-of-Semester Literary Comprehension Test Scores and Gain by Initial Level of Knowledge, for TV and Conventional Classes*

Initial-Knowledge Level	*Pre-test Scores ($\overline{X}$)*	*Post-test Scores ($\overline{X}$)*	*Gain*	*t (Gain)*
Television Classes				
High (N=45)	56.2	53.4	–2.8	H–M=1.67
Middle (N=32)	44.5	44.5	0.0	M–L=1.40
Low (N=28)	34.8	37.8	3.0	H–L=2.88
Conventional Classes				
High (N=28)	57.5	51.5	–6.0	H–M=3.95
Middle (N=32)	44.7	43.6	–1.1	M–L=1.35
Low (N=28)	31.1	32.4	1.3	H–L=3.78

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* Post-test means are in some cases lower than pre-test means. The testing situation at the end of the semester necessitated a shortened test time period. However, the time period was the same for all classes, television and conventional, thus permitting a comparison of scores.

TABLE ENGLISH–C

English R–1: End-of-Semester Theme Scores and Gain by Initial-Ability Level for TV and Conventional Classes

Initial-Ability Level	*Pre-test Scores ($\overline{X}$)*	*Post-test Scores ($\overline{X}$)*	*Gain*	*t (Gain)*
Television Classes				
High (N=38)	6.16	6.55	0.39	H–M=1.89
Middle (N=29)	4.07	5.31	1.24	H–L=2.32
Low (N=42)	3.07	4.51	1.44	
Conventional Classes				
High (N=51)	6.06	6.35	0.29	H–M=2.51
Middle (N=24)	4.00	5.42	1.42	H–L=5.00
Low (N=24)	2.17	5.04	3.04	M–L=2.87

TABLE ENGLISH–D

English R–2: End-of-Semester Theme Scores and Gain by Initial-Ability Level for TV and Conventional Classes

Initial-Ability Level	*Pre-test Scores ($\overline{X}$)*	*Post-test Scores ($\overline{X}$)*	*Gain*	*t (Gain)*
Television Classes				
High (N=23)	7.65	5.61	−2.04	H–M=4.58
Middle (N=36)	5.72	5.83	0.11	M–L=1.42
Low (N=18)	3.06	4.28	1.22	
Conventional Classes				
High (N=29)	7.69	6.83	−0.86	H–M=2.29
Middle (N=34)	5.29	5.41	0.12	H–L=2.72
Low (N=25)	3.40	4.36	0.96	M–L=1.23

TABLE ENGLISH–E

English R–1: Achievement (Co-operative English Test) for All Sections by Medium of Instruction

	Television				Conventional			
Instructor	Pre ($\bar{X}$)	Post ($\bar{X}$)	Adjusted Post* ($\bar{X}$)	Gain†	Pre ($\bar{X}$)	Post ($\bar{X}$)	Adjusted Post ($\bar{X}$)	Gain
A	63.8	65.8	61.5	2.0				
B	59.3	61.4	60.9	2.1	53.2	54.2	58.9	1.0
C	58.0	57.7	58.3	−0.3				
D	57.3	59.7	60.9	2.4				
E	56.1	59.5	61.6	3.4	56.9	59.9	61.4	3.0
F	64.8	64.6	59.4	−0.2	58.7	61.8	61.8	3.1
G	59.5	60.0	59.3	0.5				
H	63.1	64.4	61.7	1.3				
I	59.3	64.1	63.6	4.8	55.9	63.4	65.6	7.5
J	60.3	60.6	59.2	0.3				
K	62.0	64.4	61.6	2.2	57.2	59.4	60.7	2.2
L	55.4	55.5	58.3	0.1				
M					60.1	62.7	61.3	2.6

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* For explanation of adjusted post-scores, *see* footnote, Table 5, page 18.

† Gain here is derived by subtracting the mean pre-test scores from the mean post-test scores.

TABLE ENGLISH–F

English R–1: Achievement (Theme Writing) for All Sections by Medium of Instruction*

	Television				Conventional			
Instructor	Pre ($\bar{X}$)	Post ($\bar{X}$)	Adjusted Post ($\bar{X}$)	Gain†	Pre ($\bar{X}$)	Post ($\bar{X}$)	Adjusted Post ($\bar{X}$)	Gain†
A	4.38	7.31	7.37	2.93				
B	3.86	4.79	5.08	0.93	4.72	4.63	4.55	−0.09
C	4.89	5.33	5.18	0.44				
D	4.67	5.08	5.03	0.41				
E	3.91	6.09	6.35	2.18	4.41	6.09	6.13	1.68
F	5.09	5.55	5.32	0.46	4.63	6.44	6.40	1.81
I	4.18	4.36	4.51	0.16	4.73	4.63	4.55	−0.10
J	3.90	5.20	5.40	1.30				
K	4.80	6.10	5.99	1.30	5.15	6.30	6.04	1.15
L	4.50	5.25	5.21	0.75				

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* Theme scores for three classes were not available. Thus Instructors "G," "H," and "M" do not appear in this table.

† Gain here is derived by subtracting the mean pre-test scores from the mean post-test scores.

TABLE ENGLISH–G

English R–2: Achievement (Literary Comprehension Test) for All Sections by Medium of Instruction*

	Television				*Conventional*			
Instructor	*Pre* $(\overline{X})$	*Post* $(\overline{X})$	*Adjusted Post* $(\overline{X})$	*Gain*†	*Pre* $(\overline{X})$	*Post* $(\overline{X})$	*Adjusted Post* $(\overline{X})$	*Gain*
A	44.4	43.2	43.9	−1.2				
B	47.2	48.4	47.1	1.2				
C	49.2	46.9	44.2	−2.6	41.5	41.9	44.6	0.4
D	46.1	47.1	46.6	1.0				
E	44.6	39.4	40.0	−4.2				
F	46.3	47.2	46.6	0.9				
G	47.6	51.5	50.0	3.9				
H	46.1	44.7	44.2	−1.1	42.3	42.8	45.0	0.5
J	40.6	41.7	45.1	1.1				
K					50.8	46.1	42.3	−4.7
L					45.3	41.8	41.8	−3.5

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* Post-test means are often lower than pre-test means. The testing situation at the end of the semester necessitated a shortened test time period. However, the time period was the same for all classes, television and conventional, thus permitting a comparison of scores.

† Gain here is derived by subtracting the mean pre-test scores from the mean post-test scores.

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